



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

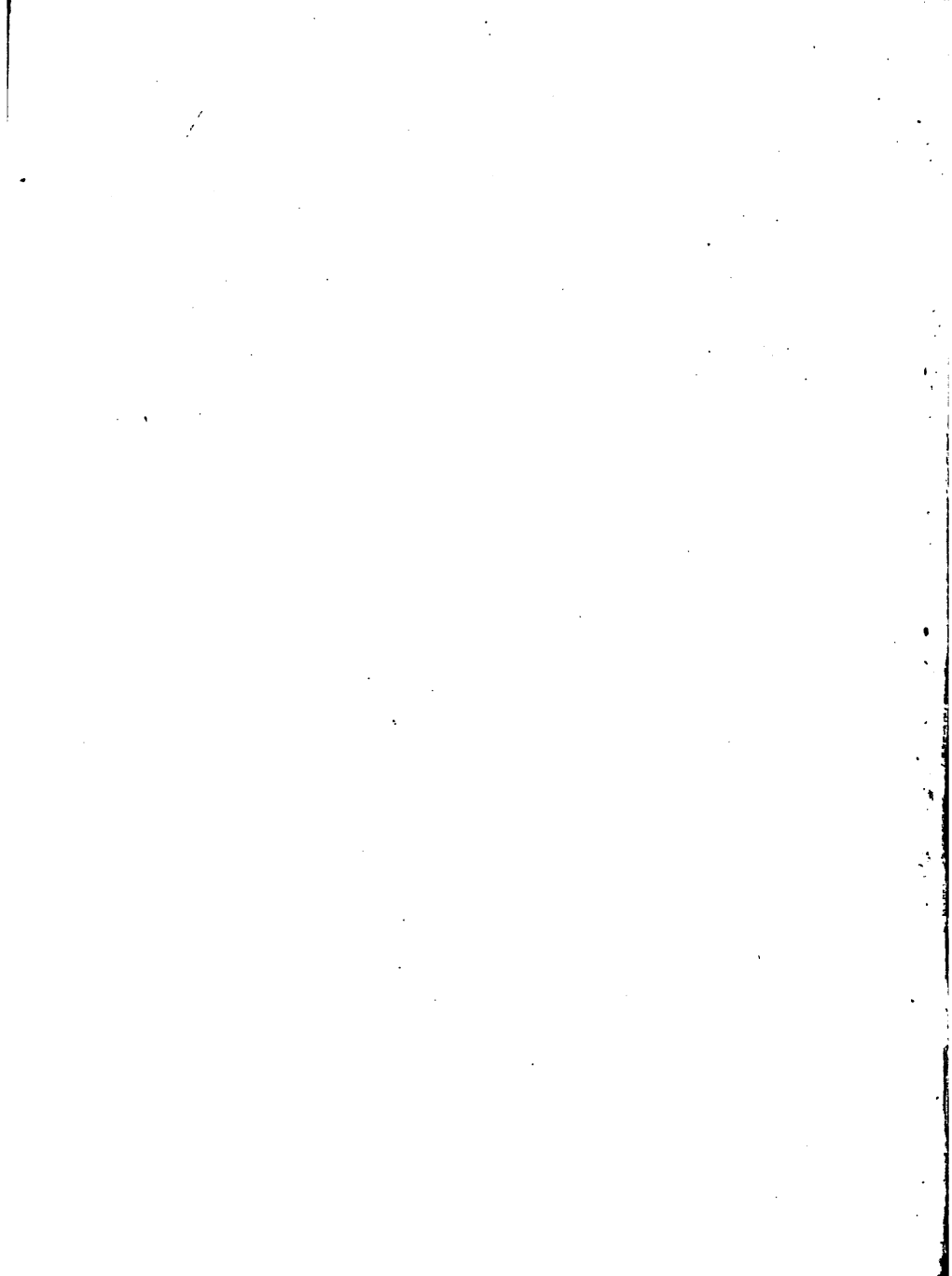
### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

1. Reading books

NAS

A 11



# ALL THE YEAR ROUND

A NATURE READER

## PART I: AUTUMN

BY

FRANCES L. STRONG  
ST. PAUL TEACHERS' TRAINING SCHOOL

ILLUSTRATED BY

GERTRUDE A. STOKER  
SUPERVISOR OF DRAWING, ST. PAUL



BOSTON, U.S.A., AND LONDON  
GINN & COMPANY, PUBLISHERS.

*The Athenæum Press*

1898

MRS

THE NEW YORK  
PUBLIC LIBRARY  
**965667A**

ASTOR, LENOX AND  
TILDEN FOUNDATIONS  
E 1938 L

COPYRIGHT, 1896, BY  
FRANCES L. STRONG

ALL RIGHTS RESERVED

## NOTE TO THE TEACHER.

---

IT is not the purpose of the author of this series to offer, or even suggest, any rules for its use. If anything is established in education, it is the fact that aside from certain underlying principles and general directions, each teacher must be a rule unto herself. The methods which the author and her colleagues have found successful might be entirely out of harmony with an equally good system in some other city. It is to be presumed, however, that if this series of nature-stories should be so fortunate as to be received with favor by the educational public, it will occasionally find its way into the hands of some teachers who are not familiar with nature-work as developed in large cities and well-organized school systems. To these it may be interesting and helpful to know just "how it has been done" in the schools out of which these stories grew, and in which they have been used. Indeed, by way of comparison and suggestion, it may also be of assistance to those who have passed through the experimental stage and have wrought out a system of their own.

It has been the custom in the St. Paul public schools to pursue the following plan:

*Materials.* — The teacher goes out with her pupils to collect the materials referred to in the lessons, gathering enough to allow each pupil one specimen. Animals and plants are kept alive in the schoolroom to enable all to study their growth and habits.

After the material is at hand, the development of a specific lesson is divided (though not formally and rigidly) into five parts.

I. *Morning Talk.* — The work of the day is begun with a morning talk based either upon one of the natural objects, or upon a geographical topic, according to the season.

If an animal, a plant, or a stone be the subject of the lesson, pains are taken to see that each child is provided with a specimen. By skillful questioning, statements are drawn from the children concerning the facts the teacher wishes observed. New words are occasionally suggested and written upon the blackboard, and their frequent use is required throughout the lesson. In studying objects, it has, of course, been found advisable to consider them as belonging to some great family, making comparisons, and finding resemblances and differences. Children readily find this family element in all things studied.

II. *Drawing.* — The observation lesson is followed by a drawing lesson upon the subject studied. The child has already been supplied with the plant or animal. Each child draws his specimen carefully. It is by no means necessary for the teacher herself to be able to draw in order to get results. Each child is simply required to reproduce with his pencil just what he sees, just as he sees it. Children illustrate their language papers on flowers with water-colors



or pencil. Work in free-hand cutting can be given from all objects, such as bottles, leaves, animals, etc. Scissors are used for this cutting. Modeling in clay is done from any object that will correlate with the other work. It has been found that in connection with the myths there is a great opportunity to develop imagination by allowing the child to illustrate the stories.

III. *Spelling*. — A spelling lesson upon the new and difficult words will follow.

IV. *Reading*. — The child is now ready for the reading lesson appropriate to the subject.

V. *Language*. — Finally, the children write descriptions of the object or country studied, giving free expression to the facts each has acquired.

It may be added that great interest may be excited by introducing into the number-work problems concerning the subject of the morning talk.

The literature, also, holds a very prominent place in this nature-work. The following list suggests poems to be committed to memory, and stories to be read in connection with this reader :

Flower and Fruit . . . . .	<i>Jane H. Newell</i>
Wait and See (Fruits), "Child's World" . .	<i>Emilie Poulsson</i>
Song of Harvest }	<i>Whittier</i>
The Huskers }	
In Time's Swing . . . . .	<i>Lucy Larcom</i>
Clytie . . . . .	<i>Cook's Myths</i>
Harvest Mouse, "Kindergarten Stories and Morning Talks" . . . . .	<i>S. E. Wiltse</i>

## INSECTS.

To a Butterfly . . . . .	<i>Wordsworth</i>
The Green House with Gold Nails . . . . .	<i>S. E. Wiltse</i>
Life and Her Children . . . . .	<i>Arabella Buckley</i>
Edith and the Bees,	} "Child's World," <i>Emilie Poulsson</i>
Such a Beauty,	
A Narrow Escape (Bees),	
The Bees' Pockets . . . . .	<i>S. E. Wiltse</i>
Grasshopper . . . . .	<i>Leigh Hunt</i>
Grasshopper and Cricket . . . . .	<i>Keats</i>

## PREPARATION FOR WINTER.

The Anxious Leaf, "Kindergarten Stories and Morning Talks" . . . . .	<i>S. E. Wiltse</i>
The Kind Old Oak, "Child's World" . . . . .	<i>Emilie Poulsson</i>
The Baby Buds, Winter Clothes, "Child's World" . . . . .	<i>Emilie Poulsson</i>
Migration of Birds, Winners in Life's Race, <i>Arabella Buckley</i>	
The Flight of the Birds . . . . .	<i>E. C. Stedman</i>
Coming and Going, "Kindergarten Stories and Morning Talks" . . . . .	<i>S. E. Wiltse</i>

As will be inferred from the method outlined above, the purpose of this book will be entirely misconceived, if it is looked upon merely as a convenient means of furnishing new reading-matter for the children (although it is sincerely hoped that it will do this). It is intended also to stimulate the thought, enlarge the vocabulary, and open the eyes of the children to the wonders of the world around them.

In the St. Paul public schools the manuscript of this series has been used in the second grade. It is thought, however, that it may be used in the third, and even the fourth, with equally good results.

ST. PAUL,

October 17, 1895.



# TABLE OF CONTENTS.



## PLANTS.

	PAGE
1. THE GOLDEN-ROD AND THE ASTER . . . . .	3
2. THE GRASS WORLD (Poetry) . . . . .	6
3. THE CORN . . . . .	8
4. HIAWATHA'S FASTING . . . . .	12
5. THE CORN SONG (Poetry) . . . . .	16
6. THE LEAF MINERS . . . . .	19
7. HOW THE MILKWEED SEED TOOK WINGS . . . . .	21
8. MISS SUMACH . . . . .	27
9. THE GALLS . . . . .	30
10. THE GLADNESS OF NATURE (Poetry) . . . . .	32
11. SEEDLINGS ON THE WING . . . . .	34
12. THE GENTIAN . . . . .	40
13. LEGEND OF THE GENTIAN . . . . .	42
14. FRINGED GENTIAN (Poetry) . . . . .	44
15. WHEAT . . . . .	45
16. PROSERPINA. PART I. . . . .	47
17. PROSERPINA. PART II. . . . .	49
18. PROSERPINA. PART III. . . . .	51

## INSECTS.

19. THE GRASSHOPPER . . . . .	53
20. THE CRICKET . . . . .	55
21. THE CATERPILLAR . . . . .	57

	PAGE
22. THE BUTTERFLY . . . . .	60
23. THE BUTTERFLY AND THE MOTH . . . . .	63
24. THE BEES . . . . .	64
25. THE BEES AND THE FLOWERS . . . . .	68

## SPIDERS.

26. THE SPIDER . . . . .	71
27. THE SPIDER'S HOME . . . . .	73

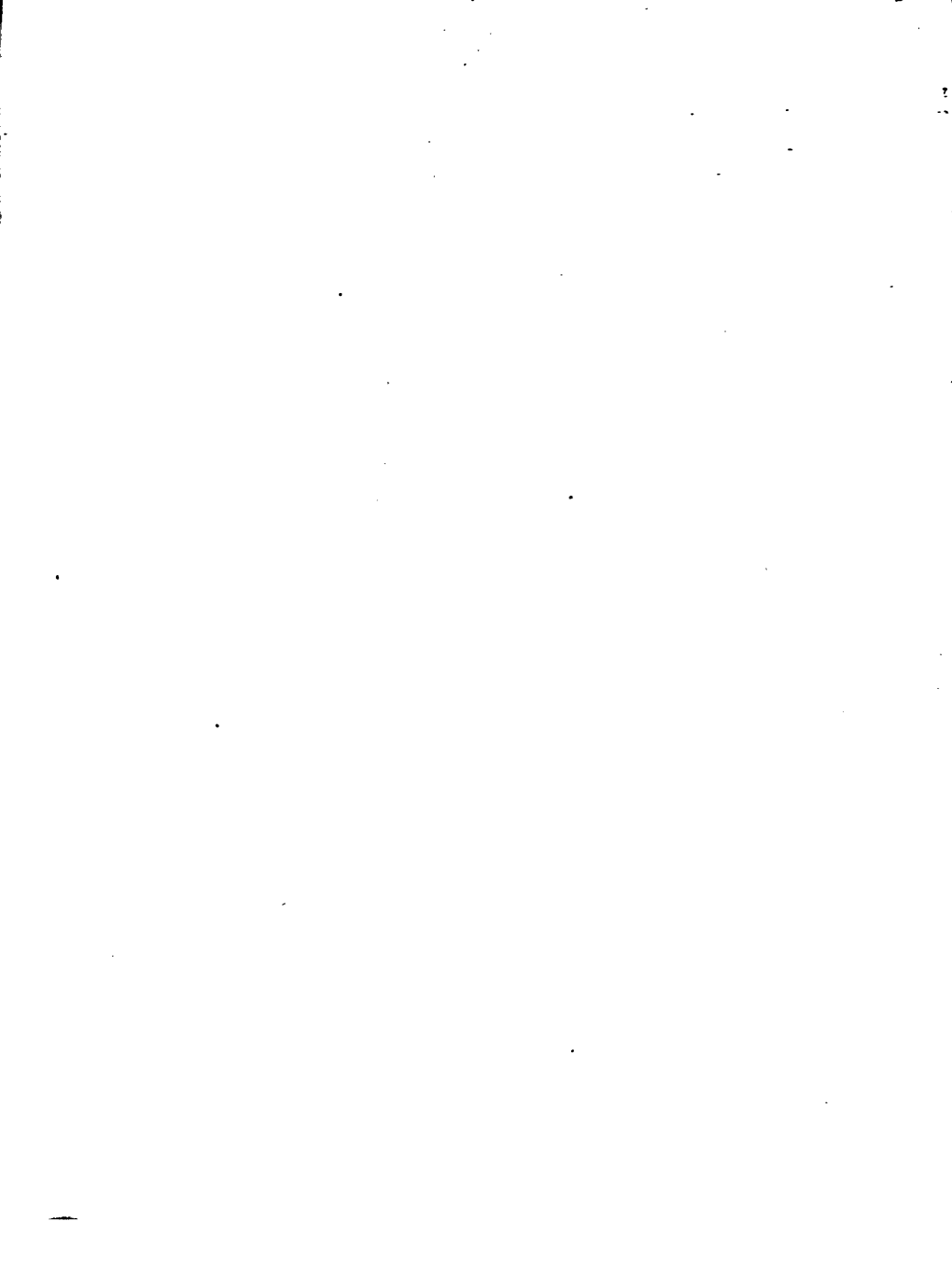
## ANIMALS — GNAWERS.

28. THE SQUIRRELS . . . . .	75
29. MR. AND MRS. CHIPMUNK . . . . .	79
30. HOW THE CHIPMUNK GOT THE STRIPES ON HIS BACK	82
31. THE RABBIT . . . . .	84
32. IN THE RABBIT'S PLACE . . . . .	86
33. THE MICE . . . . .	88
34. THE RAT . . . . .	90

## PREPARATION FOR WINTER.

35. THE SCATTERING OF THE SEEDS . . . . .	93
36. THE AUTUMN LEAVES . . . . .	95
37. FRIENDS (Poetry) . . . . .	97
38. YEARLY TRAVELERS . . . . .	98
39. WINTER QUARTERS . . . . .	100

AUTUMN.







**1. THE GOLDEN-ROD AND THE ASTER.**

---

**G**OLDEN HAIR and Blue Eyes lived at the foot of a great hill.

On the top of this hill, in a little hut, lived a strange, wise, little old woman.

It was said that she could change people into anything she wished.

She was very old and very cross, so that most people were afraid to go near her.



One summer day, these two little girls down at the foot of the hill thought they would like to do something to make everybody happy. At last, one of them said, "Let us go and ask the little old lady who lives on the hill. She is very wise, and can surely tell us just what to do."

Now, it was a warm day, and a very long walk up to the top of the hill.

But the brave little girls did not give up, though they often had to sit down to rest. They watched the fish in the brook, and the squirrels, and the birds.

They wished that there were flowers to pick on the bare sides of the hill. After a while, it grew very dark; but then the kind moon came out to show them the way. At last, they reached the top of the hill, and there at the gate stood the little old lady, looking more cross than ever.

The little girls were very much frightened, and stayed close together.

Finally, one of them said, "Please, we thought you could tell us something to do to make every one happy. But we want always to stay together, and we are very tired." Then the people say that the cross old lady was seen to smile in the moonlight, as she opened the gate for the children.

The two little girls were never seen again at the foot of the hill. But the next morning, all over the hillside, the people saw growing beautiful waving golden-rod and purple asters. And I have heard it said that these two bright flowers, which always grow together, could tell the secret, if they would, of what became of the two little girls on that moonlight summer night.

*Flora Cooke's Myths.*

A. FLANAGAN, Publ.

## 2. THE GRASS WORLD.

---

O H, life is rife in the heart of the year,  
When midsummer's suns sail high!  
And under the shadows of spike and spear,  
In the depth of the daisy-sky,  
There's a life unknown to the careless glance,  
And under the stillness an airy prance,  
And slender, jointed things astir,  
And gossamer wings in a sunny whir,—  
And a world of work and dance.

Softly in its throbbing, the conscious green  
Demurely answers the breeze;  
While down in its tangle, in riotous sheen,  
The hoppers are bending their knees;  
And only a beetle or lumbering ant,  
As he pushes the feathery spray aslant,  
Or the sudden dip of a foraging bird,  
With its vibrant trail of the clover stirred,  
Discovers the secret haunt.

Ah! the grass world dies in the autumn days,  
When, studded with sheaf and stack,  
The fields lie browning in sullen haze,  
And creak in the farmer's track.  
Hushed is the tumult the daisies knew,  
The hidden sport of the supple crew;  
And lonely and dazed in the glare of the day  
The stiff-kneed hoppers refuse to play  
In the stubble that mocks the blue,  
For all things feel that the time is drear  
When life runs low in the heart of the year.

From *Along the Way*, by Mary Mapes Dodge.

SCRIBNER'S SONS, PUBLS.

### 3. THE CORN.

---

JAMES and his sister lived in a white house in the country. There were pretty flowers in front of it, and behind were large fields of wheat and corn.

This little boy and girl watched the birds come in the spring. They knew of what their nests were made, and the color and number of eggs in each.

Later how they did enjoy seeing the mother birds feed their babies and teach them to fly! They saw the buds open, and the leaves come out.

As soon as their father had planted his corn, they went every day to watch it. They did this for many weeks and asked their father questions about it.

At the end of that time, their mother asked them to tell her all they had learned about the corn plant, and this is what they told her:

"Dear mamma, we think the corn plant is very pretty with its rustling leaves. It has long



CORN.

THE NEW YORK  
PUBLIC LIBRARY

ASTOR, LENOX AND  
TILDEN FOUNDATION



thread-like or fibrous roots which reach out and gather food for the plant.

“The stalk has many joints which look like rings, and the leaves come from these joints.

“The corn leaves are long and narrow, and clasp the stalk. The veins run up and down, and papa says, ‘Leaves with veins like those of the corn leaf are parallel-veined.’ The leaves are alternate; first one on one side, then another on the other side of the stalk a little farther up.

“The corn plant has two blossoms. They are found in different places. There is the blossom, or tassel, with its load of pollen at the top; below there are many flowers wrapped in green leaves called husks. •

“At the end of the husks, there is silk coming from the blossom. All these silken threads are really the pistils of many flowers hidden away under the thick green husks.

“The tassel, or blossom above, has something for these hidden flowers,—tiny grains of pollen.

“These little pollen grains seem to know that below them are flowers which need their help before they can grow.

“Mr. Wind came along one day and carried many of these pollen grains down to their friends



below. They did not turn and come back when they reached their friends, for they found work to do. Do you know what each little pollen grain was soon doing? Each grain was helping one kernel to grow.

“The little kernels are arranged in straight rows, side by side. The baby kernels have cradles in their home, and are carefully wrapped in green husk blankets.

“Mr. Wind gently rocks the corn stalks to and fro while they are growing.

“Papa has three kinds of corn: the corn fed to cattle, pop corn, and sweet corn. The sweet corn is cut while it is green

and is used as a vegetable.

"When the other corn is ripe, papa will cut the corn stalks down."

"Now let me finish your story," said mamma. "The ears of corn are taken off, and carried to large barns.

"After the corn has been husked, some of it will be put into large cribs which your father has built. This will be kept for food for the cows, horses, pigs, and fowls. The rest will be taken to the mill, and ground into sweet corn meal.

"Can you tell me the different things made from corn meal?"



#### 4. HIAWATHA'S FASTING.

---

**H**IAWATHA loved his people very dearly, and tried to make them happy.

One pleasant day in spring, he went alone into the forest to pray and fast for his people. He built a wigwam in the forest by the shining Big-Sea-Water. There he fasted for seven days and nights.

On the first day of his fasting, he wandered through the woods. There he saw the deer, the rabbits, the squirrels, and the birds.

He sat and thought for some time. At last he cried, "Master of Life, must our lives depend on these things?"

On the next day, Hiawatha walked through the meadow. Here he saw the wild rice and the ripe berries.

The third day of his fasting, he sat by the lake, and saw the many fish at play in the sparkling water.

Hiawatha thought, "These things, which I have seen in the forest, make our food. What

should we do if we could not get them?" Then again he said, "Master of Life, must our lives depend on these things?"

The fourth day, he lay in his wigwam on his couch of leaves and branches. He had eaten nothing for three days, and was too weak to rise.

As Hiawatha lay with half-open eyelids, he saw a youth coming towards his wigwam. This youth was dressed in bright green and yellow, with plumes bending over his forehead. His hair was soft and golden.

Standing at the open doorway, he looked at Hiawatha with great pity. He spoke softly to Hiawatha, saying, "Oh, my Hiawatha, your prayers are heard in heaven. They are not for yourself, but for your people. They shall be answered.

"I am the friend of man, Mondamin. I shall tell you how to gain that for which you have prayed. Rise from your bed of branches and wrestle with me."

Hiawatha was very weak, but he started up and wrestled with Mondamin.

Hiawatha grew stronger at the touch of Mondamin, and they wrestled till sunset. Then Mondamin disappeared.

Mondamin came back three times at sunset to wrestle with Hiawatha. He called Hiawatha a brave youth, and told him what to do when the wrestling should be over.

"Strip off these green and yellow garments," he said, "and make a bed for me. Make it where the rain may fall upon me; where the sun may come and warm me. Keep the soil soft above me, and do not let the worms and insects disturb me."

Hiawatha made the grave for Mondamin as he had been told. Then he went to the wigwam of old Nokomis.

The grave of Mondamin was not forgotten. Every day Hiawatha went and watched beside it. The earth was kept soft, and it was kept clean from weeds and insects.

One day he saw a fine green feather sprouting out of the ground. He watched every day till others came. The maize stalk stood on Mondamin's grave before the summer was over. It was dressed in green and yellow, with nodding plumes.

When Hiawatha saw the maize, he



cried, "It is Mondamin; yes, the friend of man, Mondamin!"

Then he called to Nokomis and his friend Iagoo, and showed them where the maize was growing.

"This is a gift from the Great Spirit," he said, "and shall always be our food."

Adapted from Longfellow's *Hiawatha*.

Permission of HOUGHTON, MIFFLIN & Co., Publ.

## 5. THE CORN SONG.

---

HEAP high the farmer's wintry hoard!  
Heap high the golden corn!  
No richer gift has Autumn poured  
From out her lavish horn!

Let other lands, exulting, glean  
The apple from the pine,  
The orange from its glossy green,  
The cluster from the vine;

We better love the hardy gift  
Our rugged vales bestow,  
To cheer us when the storm shall drift  
Our harvest fields with snow.

Through vales of grass and meads of flowers,  
Our ploughs their furrows made,  
While on the hills the sun and showers  
Of changeful April played.

We dropped the seed o'er hill and plain,  
Beneath the sun of May,  
And frightened from our sprouting grain  
The robber crows away.



All through the long, bright days of June  
    Its leaves grew green and fair,  
And waved in hot midsummer's noon  
    Its soft and yellow hair.

And now, with autumn's moonlit eves,  
    Its harvest time has come,  
We pluck away the frosted leaves,  
    And bear the treasure home.

There richer than the fabled gift  
    Apollo showered of old,  
Fair hands the broken grain shall sift,  
    And knead its meal of gold.

Let vapid idlers loll in silk  
    Around their costly board;  
Give us the bowl of samp and milk,  
    By homespun beauty poured!

Where'er the wide old kitchen hearth  
    Sends up its smoky curls,  
Who will not thank the kindly earth,  
    And bless our farmer girls!

Then shame on all the proud and vain,  
    Whose folly laughs to scorn  
The blessing of our hardy grain,  
    Our wealth of golden corn!

*The Corn Song.*

Let earth withhold her goodly root,  
Let mildew blight the rye,  
Give to the worm the orchard's fruit,  
The wheat field to the fly!

But let the good old corn adorn  
The hills our fathers trod  
Still let us, for his golden corn,  
Send up our thanks to God!

John Greenleaf Whittier.

Permission of HOUGHTON, MIFFLIN & CO., Publ.



## 6. THE LEAF MINERS.

SEE what has happened to this leaf! It was growing on a twig, when a little moth came flying along. When she saw it she thought, "What a fine place this leaf will be for my egg!"

She did not ask the leaf if it would like to have her leave her babies in its care, but set to work making a home for them.

The leaf has two layers; a thick one, and a very thin one. The moth seemed to know this, for she stung it, and made a hole. Then she put her eggs between the two layers.

The leaf was not at all pleased when she did this; but it never seemed to occur to her that it might object. After the eggs hatched, there were little worms between the coats. They

found plenty of food, and wandered around eating their way.

They bit holes in the leaf, or made paths to the edge of it, in order to get out into the world.

When they came out, they were changed into moths like their mother.

Some children came into the woods one day, and finding the leaf with all these paths eaten through it said, "What a queer leaf! It is not at all like its brothers and sisters. I wonder what has happened to it!"

The leaf tried to tell them, but they did not seem to hear.

## 7. HOW THE MILKWEED SEED TOOK WINGS.

---

IT was a warm, midsummer day. The bees were humming around the flowers. The birds were searching for their little babies. A beautiful butterfly flitted about, alighting now on this, now on that flower.

Down in one corner of a meadow ran a little brook, with many little flowers bordering it. The air was cool here, even on this hot day, for some friendly trees made a little grove. They spread their strong branches to shelter and shade the flowers growing about their roots.

Two little girls, Annie and Elsie, who lived in the farmhouse on the top of the hill, often came here to play. They built many houses with sticks and leaves which fell from the trees, and made carpets of pretty mosses that cuddled close to the tree's roots.

Then sometimes, they would take off their shoes and stockings and wade in the brook. Such fun! They found so many nice, round stones in the bottom of the brook.

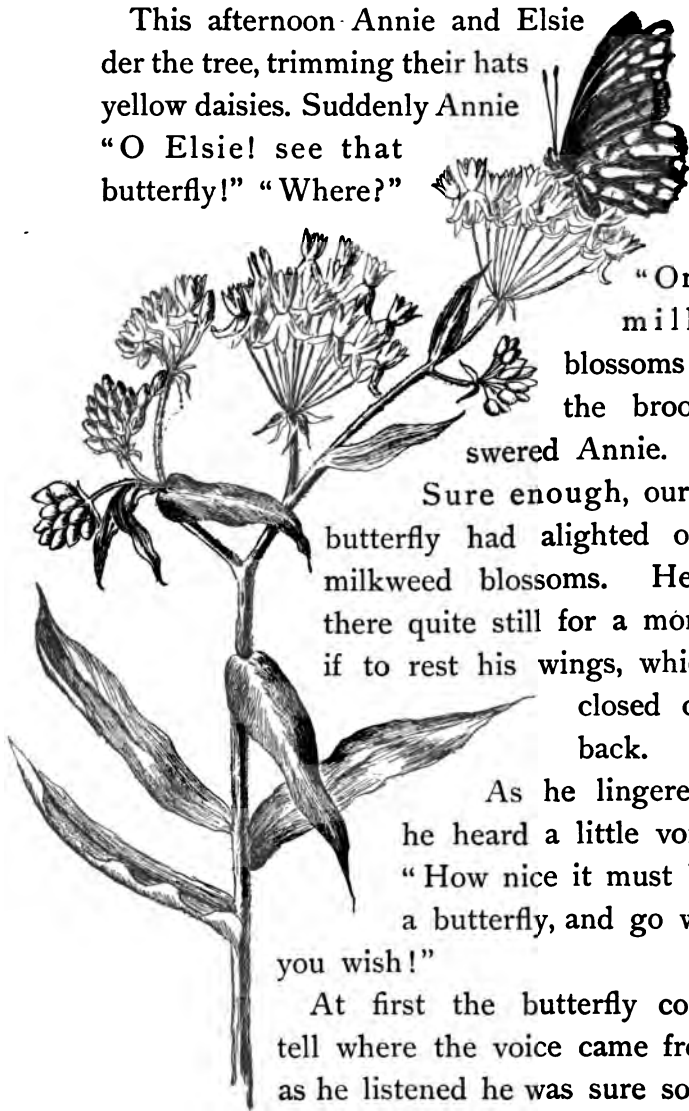
This afternoon Annie and Elsie sat under the tree, trimming their hats with big yellow daisies. Suddenly Annie said, "O Elsie! see that lovely butterfly!" "Where?" said Elsie.

"On those milkweed blossoms close by the brook," answered Annie.

Sure enough, our pretty butterfly had alighted on some milkweed blossoms. He stayed there quite still for a moment, as if to rest his wings, which were closed over his back.

As he lingered there, he heard a little voice say: "How nice it must be to be a butterfly, and go wherever you wish!"

At first the butterfly could not tell where the voice came from; but as he listened he was sure something



was talking within the little flowers. "Who are you, and where are you?" he asked.

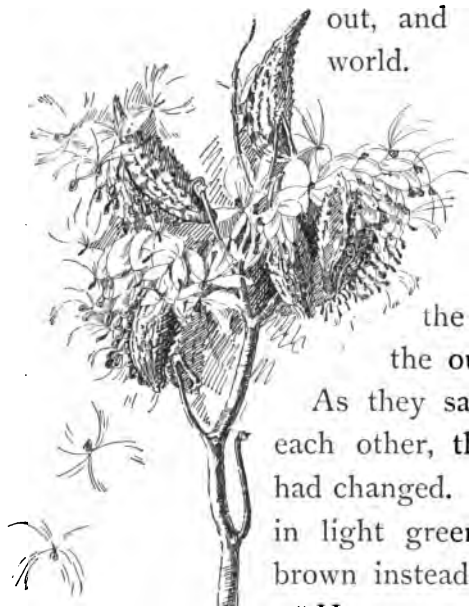
And the little voice answered: "Oh, you cannot see me; I am a tiny little thing. I have a great many brothers and sisters growing here with me. Our mamma flower calls us her baby seeds. We are all very close together, our house is so small.

"We have had happy times; the sun has warmed us, and the rain and dew have given us drink when we were thirsty, and we have grown together all summer. But I do think it must be much nicer to be a butterfly, and go wherever you like."

The butterfly opened his wings and lifted himself up into the air, but alighted on the milkweed blossoms. Just as he started to fly away, he said: "Keep on growing, little seeds, and when you are full grown and old enough, you too shall fly. Mr. Wind will take you, and play with you until you will be glad to alight, just as I do to rest my wings." He opened his wings and flew away.

What became of the little seed? It grew; its brothers and sisters grew; and the little house they lived in grew.

At last, the house was no longer green, but brown,—growing browner every day. One morning, it cracked open, making a long door of one whole side. The little seeds looked out, and saw the great, lovely world.



Some of the seeds that were bolder than the others scrambled out of the door ; but not daring to leave the house, they clung to the outside.

As they sat there and looked at each other, they saw that they too had changed. They were not dressed in light green now, but wore dark brown instead.

“How queer everything is!” one of the little seeds said ; “I do believe what the butterfly said is really true, and that I shall fly away.

“I feel very light and strange. This funny silky stuff that is spread out around me must be my wings. I do wish Mr. Wind would come and take me off with him. I want to see all of this big, beautiful world.”



THE NEW YORK  
PUBLIC LIBRARY

ASTOR, LENOX AND  
TILDEN FOUNDATIONS  
R L



THE LITTLE MILKWEED SEEDS.

Mr. Wind was very busy those days, so many things needed a good blowing and airing. Soon he would shake off all the leaves from the trees, as they must come to the ground to keep the seeds and plants warm.

Now he came from the North, full of business; but as he hurried along he blew upon the milkweed seeds, and oh! what a time there was! It seemed as if the seeds had each fifty wings! He whirled them around, tossed them up and down, now to the right, and now to the left.

Sometimes, one would get dizzy and stop for a moment on some plant; but Mr. Wind would not let him rest, and away they went, whirling, dancing, skipping, and flying. Suddenly, Mr. Wind thought of all the other things he had to do, and was gone as quickly as he came.

"Well, what the butterfly told me has come true," said the little seed. "How warm this sunlight feels! I really believe I am sleepy. I think I shall go—to—sleep."

Mr. Wind had left him on some soft earth close by a great red barn, and there he fell asleep. When the cold rains came, they did not wake him; he only settled more deeply into his earthy bed.

Soon the leaves on the trees turned different colors, — some red, some yellow, some brown, and some orange.

Now Mr. Wind had his work to do, and he did it well. In a few days the leaves left the trees, and covered the earth with a warm blanket. Some of them covered our little seed close by the barn. Soon the snowflakes came, and everything was buried under their white coverlet.

The plants and seed slept until the warm springtime. Then the bluebirds and robins came home from their long southern journey; the buds of the trees grew, and the little leaves unfolded; the snowdrops and crocuses and dandelions blossomed. It was time for our little seed to grow.

He was not idle a single moment.

Annie and Elsie were playing around their papa's barn, picking dandelions and digging in the sweet earth. It was here, close to the red barn, that they found the milkweed growing tall and green.



8. MISS SUMACH.

“GOOD morning,” said Miss Milkweed Seed as she stopped in front of Miss Sumach’s home, where the wind had blown her.

“I should think you would be tired staying up on that bush all the time. Just see how I go flying around the country in my white silk dress. You, poor thing, stay up there with your brothers and sisters, and never have a chance to go about and see the world.”

Miss Sumach looked down on Miss Milkweed Seed, smiled, and said, “Oh! I have a pleasant time where I am. I shall stay here for a time, then perhaps I shall leave when the cold comes.

But some of my brothers and sisters may stay here all winter.

"Do you see what a lovely coat I have? It is of red velvet, and I wear it to keep my little brown seed warm. You fly about; but I am round, and if I fall, I shall roll until I find a place to make my bed for the winter.

"Some people like to eat me. If you taste me, you will find that I am sour. But children like that.

"Many years ago the Indians used to come to me to get red paint to paint their faces when they were going to have a war dance. The color of this lovely red coat of mine just suited them.

"My leaves are rather large. Each leaf has one large stem with many leaflets fastened to it. A leaf made up of leaflets is called a compound leaf.

"I have many leaves on my bush, and in the autumn they are almost like my coat in color. Now that they have put on their bright dresses, they will soon leave me."

"Dear me," said Miss Milkweed Seed, "you seem to be quite contented as you are; but as for me, I must be going. Good-by." And

off she went with Mr. Wind, who came along just then.

From her high perch, Miss Sumach watched Miss Milkweed Seed as she flew up, up over the country.

"I was made too heavy to fly," said Miss Sumach, "and I am glad to be here on this tall bush with my brothers and sisters.

"Soon some of us will drop and roll into our winter bed in Mother Earth's storehouse. There we shall be covered with two or three blankets to keep us warm."



## 9. THE GALLS.

---

POOR golden-rod stem! See the great swollen place on it! This swelling is shaped much like an onion, and surely does not belong there!

No, let me tell you how it was done.

A strange kind of fly was hunting a place to lay her egg where no harm could come to it. She chose this stem for its home, and in order to place it there, she did a queer thing. She dropped a small drop of poison on the stem. Then the stem began to swell and swell.

Have you ever been poisoned by touching poison ivy? If so, you will remember how your face or hands were swollen.

This stem swells, too, when it is poisoned. While this swollen place was yet soft, Mrs. Fly bored a hole with her egg tube and dropped in her egg.

A worm hatched from the egg, and found itself in a nice warm home.

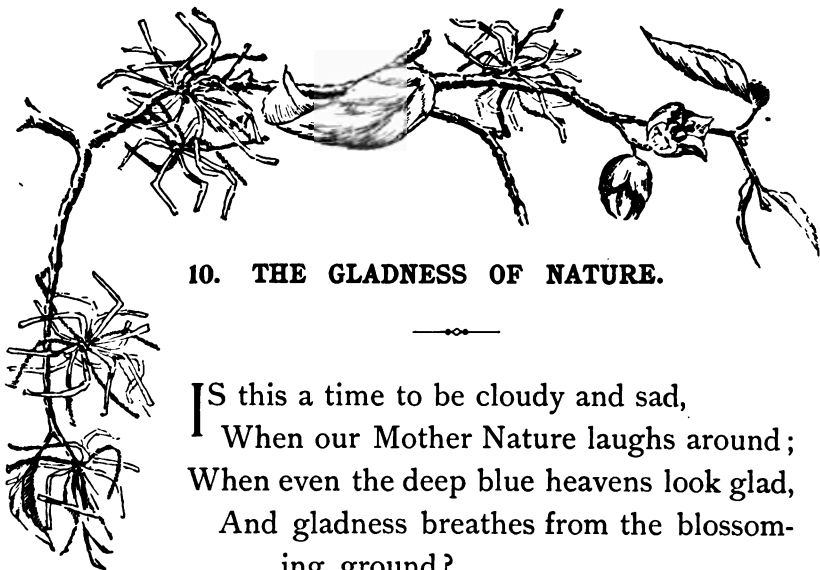


Soon the worm changed to a fly, and wanted to get out into the open air, where it could fly about.

What did it do to set itself free? It dropped a drop of poison in this ball, which softened it. Then with its fore-feet it worked its way out and flew away.

Some flies like the oak tree for a home. There are many trees and bushes with these galls. See how many different kinds you can find.





## 10. THE GLADNESS OF NATURE.

---

IS this a time to be cloudy and sad,  
When our Mother Nature laughs around ;  
When even the deep blue heavens look glad,  
And gladness breathes from the blossom-  
ing ground ?

There are notes of joy from the hangbird and  
wren,

And the gossip of swallows through all the  
sky ;

The ground squirrel gayly chirps by his den,  
And the wilding bee hums merrily by.

The clouds are at play in the azure space,  
And their shadows at play on the bright green  
vale,

And here they stretch to the frolic chase,  
And there they roll on the easy gale.

There's a dance of leaves in that aspen bower,  
There's a titter of winds in that beechen tree,  
There's a smile on the fruit, and a smile on the  
flower,  
And a laugh from the brook that runs to the sea.

And look at the broad-faced sun, how he  
smiles  
On the dewy earth that smiles in his  
ray,  
On the leaping waters and gay young  
isles;  
Ay, look, and he'll smile thy gloom  
away.



WILLIAM CULLEN BRYANT.

## 11. SEEDLINGS ON THE WING.

---

“COME, little Thistle-seed,” whispered the wind one day, “you can’t lie so closely in your mother’s lap always. I want some one to play with; come with me.”

The seedling spread its wings a little, and listened as the soft wind spoke. It wanted very much to go, but said to the wind, “I do not like to leave my brothers and sisters.”

“They will all go some day and leave you; you had better come now while the weather is beau-



tiful, and I shall not always be so gentle and warm a playfellow as I am to-day."

Slowly, the seed slipped out of its nest, to leave the dear home where it had grown from a tiny spike of purple to a full-winged, ripened seed.

"Come away! come away!" called the impatient wind, as the seed lovingly lingered with its sisters and brothers. Its wings were caught among their wings, and it was hard to get away.

Out into the bright sunlight, it sailed at last, carried by the soft wind. How light-hearted and happy it was! Over the low bushes, and under the high branches it floated, skimming along so merrily. All at once it heard some one calling,





“Take me with you, take me with you, gentle wind!” And a poor little dandelion seed, which had been lodged in a hazel bush since early summer, flew toward the thistle. Its wings were all blown and soiled, so that it could hardly fly. The thistle tenderly put its fluffy white arms about it to help it along. Then the dandelion told its story to its comrade, and the kind wind listened, too, as it carried them along.

“I did not leave my brothers and sisters until we had journeyed together for a long time. But the rain came down and dampened our wings, and we could not fly. Instead of falling to the ground where I might have been warm and comfortable, I happened to catch on the hazel bush where you found me. There I have been all this beautiful summer. No one stopped to help me off until you came past.”

The wind comforted it by whispering that it could not grow until spring, even if it did fall to the ground. The gentle thistle put its wings even more closely about the little

dandelion,  
and promised  
to help it so  
long as its  
own wings  
held out.

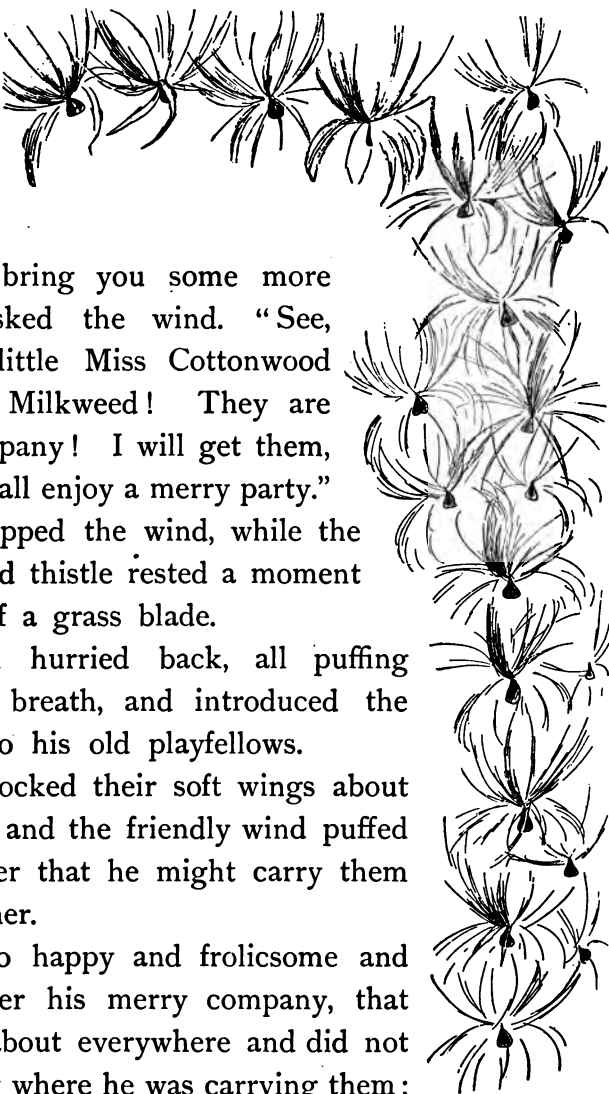
"Shall I bring you some more friends?" asked the wind. "See, yonder are little Miss Cottonwood and Cousin Milkweed! They are pleasant company! I will get them, and we shall all enjoy a merry party."

So off skipped the wind, while the dandelion and thistle rested a moment on the tip of a grass blade.

The wind hurried back, all puffing and out of breath, and introduced the newcomers to his old playfellows.

They all locked their soft wings about one another, and the friendly wind puffed a little harder that he might carry them all on together.

He was so happy and frolicsome and delighted over his merry company, that he skipped about everywhere and did not watch closely where he was carrying them;



and the happy seeds were so joyous and glad they little cared where they went.

Suddenly they touched a beautiful soft white body, that flew along so swiftly and pushed them ahead so hard that they lost their breath.

The breeze could hardly keep up with them, but he made them happy again by telling them that it was only the breast of a white dove they had blown against, and soon they would be free.

The bird flew on and on toward the sun, and just as she was descending into an oak tree, the seeds slipped away from her breast and fell to the ground. They were very glad to rest after their long journey.

Their playfellow, the breeze, hovered about them, and spread leaves over them to keep them warm. The sun was going down, and the breeze softly whispered a "Good night! sweet dreams!" and hurried on to carry the clouds to the sunset.

As they lay on the soft moss, a clear, fresh voice spoke to them: "Good day, sweet little seeds!"

They looked around and saw a seedling from a last year's acorn, that stood holding up its tall young head and tiny fresh leaves.



"I dropped here last year, as you did just now, and see how beautiful the mosses and soft rains have made me!"

"Oh, shall we be as you are?" they all whispered.

"I do not know; but it is beautiful to live and grow. Some day I shall be a tree; something tells me so."

"Oh, shall we all be trees, just like the others in this great forest?" they whispered again.

"I do not know. Go to sleep as I did, and when you wake up you will have dreamed it, just as I did, and your dream will all come true."

"Shall we all dream the same dream?" they asked.

"Wait and see," said the acorn.

And they all slept a long, sweet sleep.

## 12. THE GENTIAN.

---

ONE day in the fall, a young gentian peeped out to see what its neighbors were like. It found many little people near, who had lost their bright, beautiful dresses.

A golden-rod that stood not far away said, "How do you do, Gentian? You are late in showing your pretty blue dress. Will you please tell me about your family? I have heard that you have a very large one."

The gentian drew up its head, and, looking at the golden-rod, said, "Yes, my family is large. We live in all sorts of places. Some of my people live in cold countries, and others live in very hot ones. Some of my relatives live on high mountains, and travelers always stop to gather them, they are so beautiful.

"I am a fringed gentian. My stem is round and smooth, and I have one single large flower.

"The petals of my flower are united, making a funnel-shaped crown. There is a beautiful fringe on these petals.



THE GENTIAN.

1917

1918

1919

“Bryant says of me —

‘Thou blossom, bright with autumn dew,  
And colored with the heaven’s own blue.’

“My flower does not stay open all day. It closes in the afternoon.

“I have a bitter juice, and am sometimes used in making medicine.

“Not far away you will see some of my sisters. They are closed gentians. I once knew a little girl who kept some of the closed gentians in water for three days, watching for them to open. But they never open.

“The closed gentian has an erect stem with smooth leaves.

“The flower grows in clusters. The crown is pale blue. Sometimes you may find white ones.

“The closed gentian grows in rich, moist places.”

The golden-rod listened to hear some more. As it did not hear anything, it looked around and found that the gentian had folded its pale blue dress, and had gone to rest.



### 13. LEGEND OF THE GENTIAN.

---

ONCE the Queen of the Fairies was out late at night. The midnight hour had passed, and the silver moon, the fairy lamp, had swung down and out of sight.

Hurrying to a gentian, the fairy asked for shelter. "Who are you, that you disturb me at this hour of night?" called the sleepy gentian.

"I am the Queen of the Fairies," cried the little lady.

"Very well, then, if you are the Queen of the Fairies, you can find places enough to sleep. Go away and let me sleep."

Poor little Fairy Queen! She was afraid out in the big, dark world.

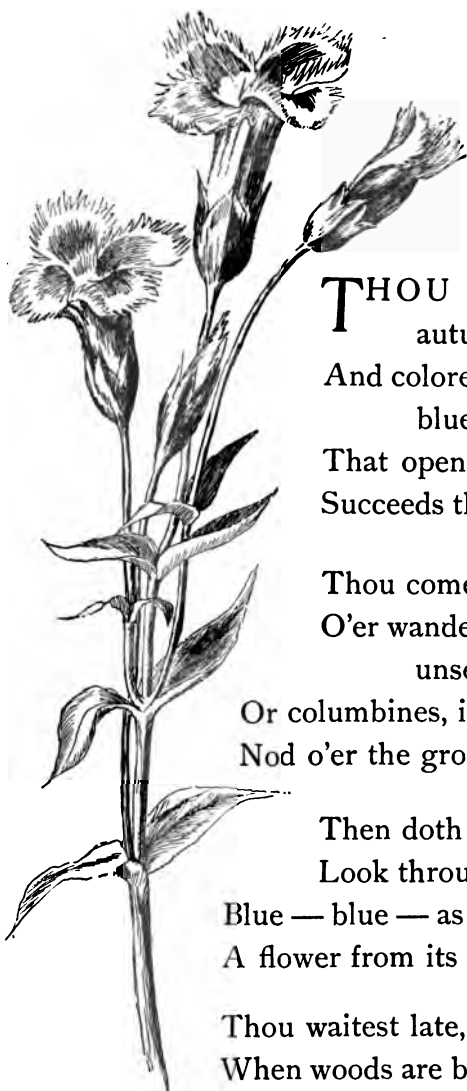
"I will try again," said she. And so, going up

to another gentian not far away, she timidly said, "Can you give me shelter, good flower?"

Out peeped the gentian. "Poor little lady," said the flower. "Whoever you are, you are too little to be out in the dark. Come in, and let me cover you over till the sun comes."

Then the little tired fairy slept soundly until morning began to dawn. Then, as she hastened away in the dim light, she turned to the kind gentian and said, "Kind friend, you and all your children shall hereafter be known from all other gentians by the power which I now give you to open and receive the warm sunlight when first he peeps upon the world."





14. THE FRINGED  
GENTIAN.

---

THOU blossom, bright with  
autumn dew,  
And colored with the heaven's own  
blue,  
That openest when the quiet light  
Succeeds the keen and frosty night.

Thou comest not when violets lean  
O'er wandering brooks and springs  
unseen,  
Or columbines, in purple dressed,  
Nod o'er the ground-bird's hidden nest.

Then doth thy sweet and quiet eye  
Look through its fringes to the sky,  
Blue — blue — as if that sky let fall  
A flower from its cerulean wall.

Thou waitest late, and com'st alone,  
When woods are bare and birds have flown,  
And frosts and shortening days portend  
The aged year is near his end.



## 15. WHEAT.

---



WHEAT belongs to the great family of grasses, and like them, has hollow, jointed stems.

Spring wheat is sown in the spring, and cut in the autumn of the same year.

Winter wheat is sown in the autumn, usually in September. The coat of the seed bursts and the plant comes up before winter. It comes up again in the spring, ripens, and is cut about the middle of the summer.

Some of the heads of wheat are bearded. The heads of others are bald, that is, without beards. In the picture you will find both kinds.

When the heads form they are soft and green; but the warm sunshine ripens them, and they turn a beautiful golden.

When the wheat is ripe, it is reaped, or cut down and tied into bundles called sheaves. After the sheaves have been dried, large stacks are made of them.

Then comes the threshing, when the kernels of wheat are beaten out of the shells. These shells are called chaff.

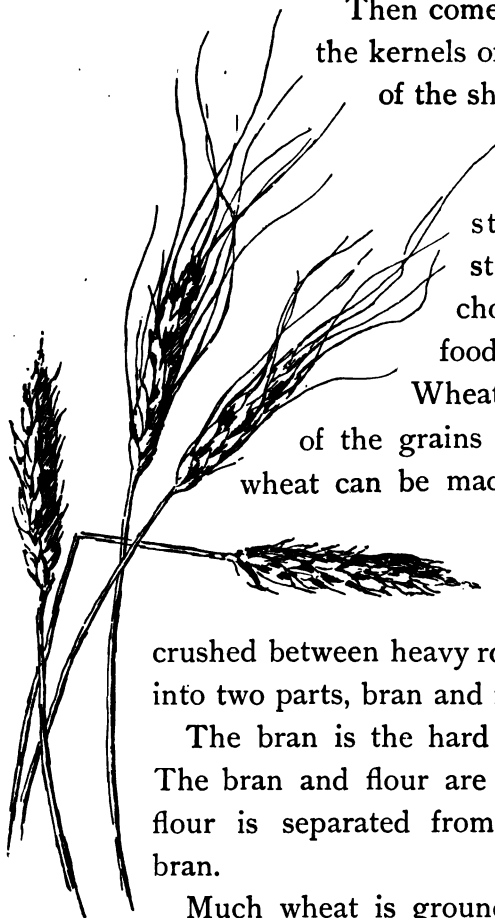
The stems or stalks are used for straw. They are also chopped and mixed with food for cattle.

Wheat is one of the best of the grains for food. Before the wheat can be made into bread it must be ground into flour.

It is carried to the mill, where it is crushed between heavy rollers. It is separated into two parts, bran and flour.

The bran is the hard outside of the grain. The bran and flour are sifted, and the white flour is separated from the darker colored bran.

Much wheat is ground coarsely and eaten in the form of cracked wheat.



## 16. PROSERPINA.

### PART I.

---

ONCE upon a time, long ago, there lived a goddess whose name was Ceres. She loved all the plants and grains, and cared for them.

Ceres had a dear little girl named Proserpina. She loved her dearly, and would not let her go into the fields alone.

One day Ceres said to Proserpina, "Dear child, some of my poor plants are thirsty. The ground is very dry, and they cannot get any water. I must go to see what I can do for them. While I am gone you may go to the seashore and play with the sea nymphs."

Ceres put on her bonnet of red poppies. She then stepped into her chariot and said, "Good-bye, dear child."

Proserpina stood and watched her mother until she was out of sight; then went, singing, to the seashore. The sea nymphs heard the singing and brought her a necklace of seashells.

Proserpina thanked them, and went into the fields to get some flowers to make wreaths for them. She picked many flowers; among them sweet roses and blue violets.

Suddenly she saw a large bush in front of her, covered with beautiful flowers. Proserpina wished to take the bush home with her. She took hold of it with both hands and pulled and pulled. Soon she had pulled it out by the roots; but where the bush had stood was a deep hole.

## 17. PROSERPINA.

### PART II.

---

THE hole grew larger and larger. Suddenly four black horses sprang out of it, drawing a golden chariot.

A man sat in the chariot with a crown on his head. His face was gloomy. His clothes were covered with diamonds.

Poor Proserpina was frightened and screamed for her mother. Then the man said, "Do not be frightened; I will not harm you. I am King Pluto. I live in a beautiful golden castle. All the gold and silver and diamonds in the earth are mine."

Proserpina still cried for her mother; but Pluto took her and placed her in the chariot.

Pluto now urged on his horses. The chariot passed Ceres, who was working in a field. Proserpina cried for her mother. Ceres heard but could not see her.

The road grew darker and darker. At last they reached Pluto's castle. The walls were made of

fine gold ; the windows were made of crystal ; the lamps were sparkling diamonds.

But Proserpina was very sad in Pluto's castle. She would eat nothing, for she knew that if she did she could never see her mother again.

## 18. PROSERPINA.

### PART III.

---

WHEN Ceres heard her little girl scream, she looked all around but could not see her.

She went to the sea nymphs and asked for her child. They said, "She went into the fields." Then Ceres lighted a torch and searched for her. The sun-god told her that Pluto had taken her away to his home.

Poor Ceres feared she would never see her daughter again. She was so sad, she said she would not let the plants grow until Proserpina came back.

The plants did not grow, and the people were unhappy.

Mercury was now sent to Pluto. He said, "King Pluto, Ceres grieves for Proserpina. Will you let her go back to her mother?"

"I am sorry Proserpina must go," said Pluto, "but if her mother is so unhappy that she will not let the plants grow, you may take her."

Pluto's servant had given Proserpina a pomegranate. When she took it in her hand, she grew

hungry. She took a bite and swallowed six seeds. Just then Mercury and Pluto came in.

Pluto told Proserpina she might go to her mother.

The little girl said good-bye to Pluto and started for home. When she came the grass grew green, the flowers bloomed, and everything looked bright and happy.

Ceres was sitting on her doorsteps. She saw everything turning green. Looking up, she saw her child. Soon she had her in her arms. How happy they were!

Proserpina told her mother the whole story. Ceres became sad when she heard that she had swallowed six seeds of the pomegranate.

"My dear child," she said, "you must stay one month with Pluto for every seed you have swallowed."

"I am not sorry," said Proserpina, "I like Pluto very much. He was very kind to me."

Now children, let me tell you something about Ceres. In the spring, when everything becomes green, we say that Proserpina is visiting Ceres. In the fall, when everything is bare, Proserpina is leaving her mother. She is going to visit Pluto.



THE  
OFFICE  
OF THE  
ATTORNEY  
GENERAL  
STATE OF  
NEW YORK  
ALBANY  
JANUARY 10, 1900



THE GRASSHOPPER.

## 19. MR. GRASSHOPPER.



**M**R. GRASSHOPPER is sometimes called 'the little old man of the meadow.'

Did you ever notice what a queer old face he has?

After Mr. Grasshopper has been hatched from the egg, he has no wings, but hops about without them. He grows very fast and soon sheds his skin.

After a while his wings begin to grow, and after shedding his skin from time to time, he is a perfect grasshopper.

Mr. Grasshopper is an insect having a head, thorax, and abdomen. He has a mouth with two strong jaws, two feelers, and two bright eyes.

Back of his head he wears a broad collar, which is a part of his thorax. His legs and wings are fastened to his thorax.

He has three pairs of legs. The two hind legs are very long and are used for leaping. His four front ones are much shorter.

His two pretty wings fold like a fan, and are covered by two plain brown wings called wing covers.

His abdomen is made up of rings.

Mr. Grasshopper eats grass and leaves, and his jaws are so strong that he has been known to eat cloth, and even to make large holes in it.

## 20. THE CRICKET.

---

**D**ID you ever hear this insect's merry song? It sings, "Cheer up! Cheer up!" The cricket is a happy little fellow, and sings all day and often all night.

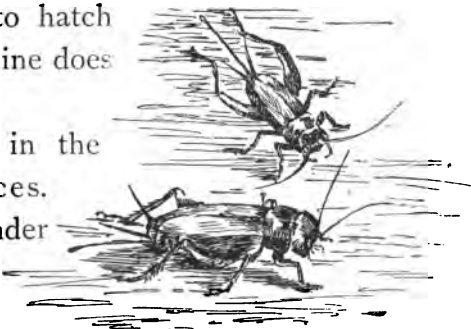
He does not make this sound with his mouth, but by rubbing his wing covers together.

When Mr. Cricket says "Cheer up! Cheer up!" he is calling Mrs. Cricket. She never sings; she leaves that to Mr. Cricket.

Can you tell one from the other? Mrs. Cricket has a long egg-tube at the end of her body. With this egg-tube she makes a hole in the ground, and in this hole, she lays her eggs.

She does not wait to hatch them; the warm sunshine does that for her.

Field crickets live in the fields in moist places. They like to hide under stones. They are of the color of the

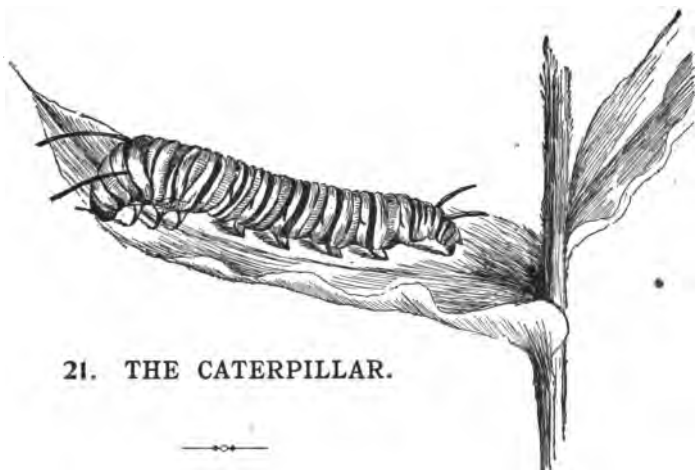


ground, and for this reason are often overlooked by their enemies.

Many insects are protected in this way. They are so exactly the color of the leaves or ground where they make their home that they are not noticed without search.

When King Winter comes with his snow and ice, most of the crickets are killed ; but a few hide under stones and live through the cold.

The house cricket also lives all winter. It likes to make its home in chimney-corners, where it can keep warm. In the long winter evenings it is pleasant to hear its cheerful song.



21. THE CATERPILLAR.

MRS. BUTTERFLY lays her eggs on the leaves that her babies like to eat. When the baby is hatched, it does not have to hunt for something to eat. It has a breakfast all ready.

Mrs. Butterfly's baby is not pretty. Many have said that the child is not at all like its beautiful mother.

The caterpillar's body is made of rings. There are six jointed legs on the three rings behind the head. These are the caterpillar's true legs. The four pairs behind the jointed legs are false legs. These disappear.

The caterpillar breathes through little holes in its body.



When the baby caterpillar is hatched, it seems as if it were all stomach. It eats and eats. Its coat becomes too tight. What do you think it does? It splits it down the back and throws it off. It has a new coat under the old one.

Then it eats more. This coat soon becomes too tight, so the same thing happens again. In a few weeks the caterpillar throws off its skin several times.

Some caterpillars have smooth coats; some are hairy, and some have bristles. The hairs and bristles protect the caterpillar from its enemies.

After a few weeks, the caterpillar leaves the plants on which it has been feeding. It begins to spin. It has, in its body, two long bags with a sticky fluid in them.

The caterpillar has a little spinner under its chin. When it wishes to spin, it uses the sticky fluid in these bags. As soon as this fluid reaches the air, it hardens into a silken thread.

After the caterpillar has spun its covering, its skin bursts and we have a chrysalis. It eats nothing now. Does it get hungry?



Oh, no ! the caterpillar stored away fat when it was eating so much.

In this chrysalis, a wonderful change goes on. In time it bursts open. Can you tell me what comes out?

## 22. THE BUTTERFLY.

---

ONE day, as Willie was on his way to school, he saw a beautiful butterfly.

He thought, "What a fine fellow it would be for us to study at school! I will try to catch it."

So off came his hat, and in a few minutes the butterfly was caught. He picked it up very carefully and carried it to school. There they had a nice little house made for it, with glass at the top and wire netting on all the sides.

A dish of water and sugar was placed in the house, so that the butterfly need not be hungry or thirsty.

The children were delighted, and spent much time in watching it.

Fred said, "It has a head, a thorax, and an abdomen. The four wings and six legs are fastened to the thorax. The front wings are larger than the back wings."

Nellie told about the head. She said, "It has two eyes and two feelers, with a little knob at the end of each feeler."



THE CATERPILLAR AND BUTTERFLY.

THE NEW YORK  
PUBLIC LIBRARY

ASTOR LENOX  
TILDEN FOUNDATION

"The butterfly has a mouth, and as I watched it eat the syrup made of the sugar and water, it did a strange thing.



"I saw it unroll its long tongue. This tongue looked like the spring in a watch. When it had eaten enough it rolled its tongue up again so tightly I could hardly see it."

"Miss Allen," said Willie, "when I caught the butterfly I found my hands covered with brown and yellow powder. What was that?"

"I will put a piece of a dead butterfly's wing under the microscope, and you may all look at it, and then answer the question for yourselves," said Miss Allen. —



When the glass was ready, each in his turn looked at the wing.

"Oh, Miss Allen," said Willie, "I can tell now. The butterfly's wing looks as if it had shingles. They are arranged like the shingles on the roof of a house, or the scales of a fish. How wonderful

that is! I must have rubbed off some of those scales when I caught it."



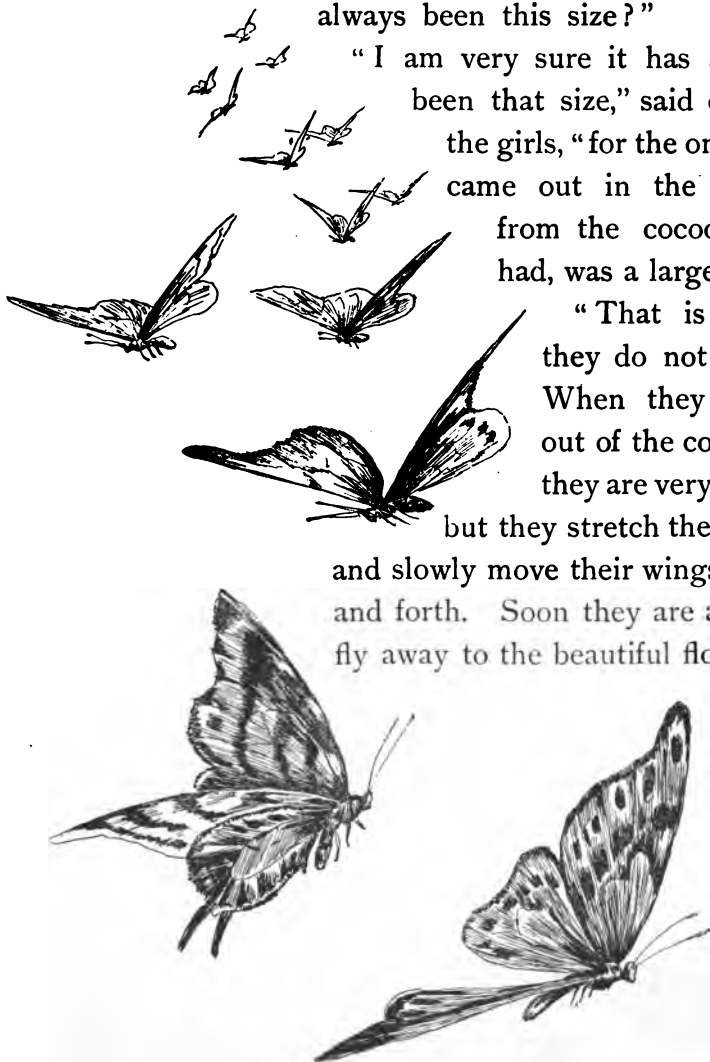
"Yes," said Miss Allen, "I am glad you can see this; for now I am sure you will always be careful in handling the

butterflies. Has this butterfly grown, or has it always been this size?"

"I am very sure it has always been that size," said one of the girls, "for the one that came out in the room, from the cocoon we had, was a large one."

"That is true; they do not grow. When they come out of the cocoons, they are very weak;

but they stretch their legs and slowly move their wings back and forth. Soon they are able to fly away to the beautiful flowers."



THE NEW YORK  
PUBLIC LIBRARY

ASTOR, LENOX AND  
TILDEN FOUNDATIONS

E

L



THE MOTH.



### 23. THE BUTTERFLY AND THE MOTH.

---

CAN you tell a moth from a butterfly?

A butterfly flies about in the daytime. The moth likes best to fly at night.

Our little butterfly friend has knobs at the ends of its feelers. The moth's feelers are without these knobs. Often they are feathered instead.

The butterfly has a more slender body than the moth.

When the butterfly is at rest, it holds its wings raised over its back; but the moth folds its wings like a fan.





1 DRONE.

2 QUEEN.

3 WORKER.

## 24. THE BEES.

**H**AVE you ever been to visit a hive of bees?  
All is life in the hive from sunrise to sunset.

Bees live together in large numbers. In every hive there are three kinds of bees,—the queen, the drones, and the workers.

The queen has a long slender body and short wings. She is the mother, and lays all the eggs.

The queen bee does no work. She does not often fly out into the sunshine, but stays at home in the hive. Here she is waited upon and fed by the workers.

The queen and the workers have a sting in the abdomen.

The drones are the father bees. They have a thick body, and neither work nor sting. There is a good reason for this. It is because they have no tools for working or stinging.

The workers are the busy little creatures in the hive. They are smaller than the queen or the drones. They have strong wings, for they must often fly far from their homes to gather food.

There are two kinds of work bees,—the wax bees, who build the honeycomb, and the nurse bees, who feed and take care of the baby bees.

Suppose that you are able to watch what is going on in the hive.

If it is a new hive, you will see a bee go to the top of the hive. It begins to pick at the under

part of its body with its fore-legs. It brings out a kind of wax from a pocket in its abdomen.

It holds the wax in its claws and bites it. Then it moistens it with its tongue into a kind of paste. This paste it plasters to the top of the hive. It has eight of these pockets, and uses the wax in each.

When this is done it will fly out of the hive, and another bee will take its place.

Many bees follow, till a large lump of wax has been left hanging in the hive.

Now another set of bees come to do their work. They are the nursing bees. They form the walls of cells in the wax.

These cells are very wonderful. They are always six-sided, never square nor round.

Some of the cells are for storing honey, some are for pollen dust, which is called bee-bread, some are for the baby bees to lie in. The queen bee lays an egg in each of the cells meant for the babies.

Some of the workers seal up these cells, leaving little holes for the air to enter.

In about three days, each egg has hatched into a tiny worm or larva.

Then the nursing bees put food made of honey and pollen dust in each cell. They mix this food in their own mouths.

In a few days, the larva grows so large that it nearly fills the cell. Then it begins to spin a cocoon all around itself. It remains in the cocoon for about ten days, and then comes out a perfect bee.

Another set of bees clean out the cells after the young bees are born, and make them fit to receive honey.

So the work goes on. Building, nursing the babies, storing up honey and bee-bread, and cleaning from morning till night.

## 25. THE BEES AND THE FLOWERS.

---

I WANT you to fancy that you are in a flower-garden where there are beds of beautiful flowers.

Soon you hear a buzzing near one of the beds, and you see a bee moving quickly among the flowers.

We have already learned that the plants make better seeds when they can get pollen dust from another plant than when they have to use that which grows in the same flower.

When a bee pushes far into a flower to reach the honey, it rubs its back against the pollen-boxes. When it comes out it carries away the pollen on its back, ready to give it to the next flower.

In watching our bee, we notice that it makes many journeys from the flower-bed to the hive. We know that it is storing up honey for winter's use.

There are many different plants growing in the flower-bed, but it does not go first to one kind

and then to another. It keeps to one kind till it flies away to its hive.

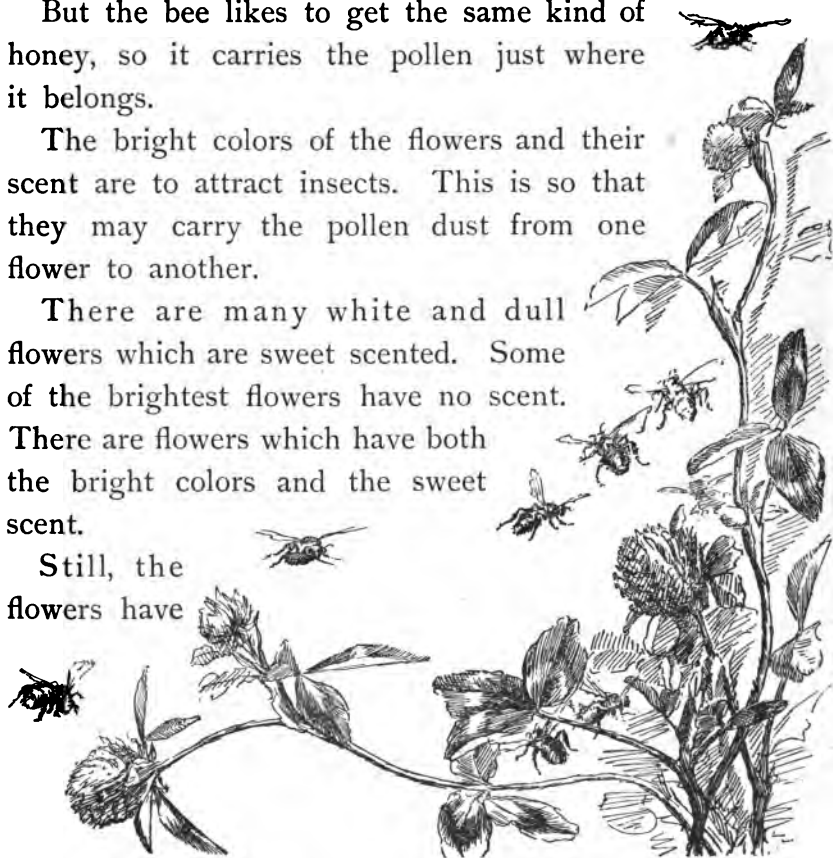
This is very useful to the flower. The pollen would be lost if the bee visited different kinds of flowers. The pollen of one flower is of use only to another flower of the same kind.

But the bee likes to get the same kind of honey, so it carries the pollen just where it belongs.

The bright colors of the flowers and their scent are to attract insects. This is so that they may carry the pollen dust from one flower to another.

There are many white and dull flowers which are sweet scented. Some of the brightest flowers have no scent. There are flowers which have both the bright colors and the sweet scent.

Still, the flowers have



other ways of attracting the insects. Have you ever noticed that different flowers open and close at different times?

The daisy opens at sunrise and closes at sunset. This is because it is visited by day insects.

The honeysuckle has a much stronger scent in the evening. This is because it loves to have a kind of moth visit it. At nightfall, the moth comes to get the honey and carry the pollen dust.

Some flowers close whenever rain is coming. This is to prevent their pollen dust from being washed away. The daisy closes when a storm is coming, because the rain would spoil its honey.

Many flowers, such as the harebell and the snowdrop, hang their heads. This is to protect their honey, for the rain or dew would spoil it.

So we find that the plants give honey to the bee, and at the same time, the bee does them good service.



THE NEW YORK  
PUBLIC LIBRARY

ASTOR, LENOX AND  
TILDEN FOUNDATIONS

E

L



## 26. THE SPIDER.

---

THE spider is not a true insect. A true insect has wings, three pairs of legs, and a body divided into three parts: a head, a thorax, and an abdomen.

The spider has no wings. It has eight legs and its body is divided into only two parts. The head and the eight legs belong to the front part of the body.

When an insect first gets its wings and legs, it is as large as it will ever be. The spider changes its size. From a baby spider, it grows to be a big spider.

Most spiders have eight eyes. They cannot move, but are set so that they can see in every direction at once. These eyes look like little beads and in a large spider can be easily seen.

The spider's jaws are like pinchers. It has two fangs which have poison in them. This poison is used when they bite.

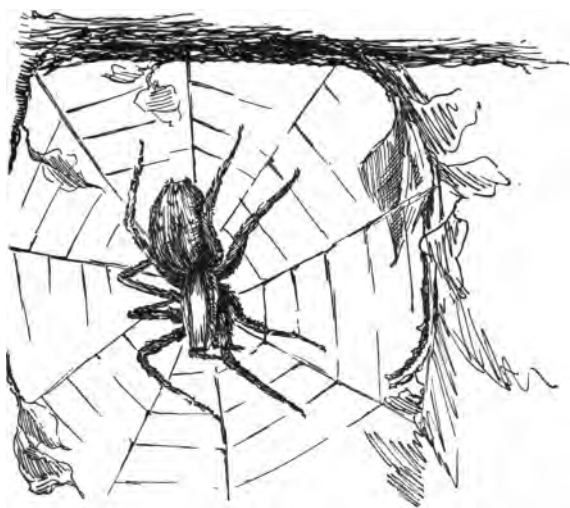
Each of the spider's eight legs has joints and is covered with tiny hairs. There are claws at the end of each leg.

Have you ever seen a nest of spider's eggs? If you should ever see an open nest, you will often find that it contains hundreds of little eggs. The little spiders will be seen moving about in the nest after the eggs are hatched.

While the spider is growing, it sheds its skin every time that it becomes too tight. Before the baby spiders are two months old, they have shed their skins three or four times. The old skins are often seen in the webs. The new skin is soft, but soon becomes hard and tough.

The spiders are somewhat like the crabs. The spider's legs are jointed like the crab's, and it is said that the leg of a spider will grow again should one or two joints be lost.

Then we have seen how, like the crab, the spider changes its skin or coat.



## 27. THE SPIDER'S HOME.

---

**H**AVE you ever noticed the different shapes of spiders' webs? Do you know how these webs are made?

On the back part of the spider's body, there are six points, each about the size of a pin's point. These are its spinnerets. Each spinneret has many tiny tubes. A sticky fluid, made in the spider's body, comes from each of these tubes. This fluid hardens as soon as it feels the air.

The tiny threads join to make a strong thread.

There may be a thread formed from each of the six spinnerets, or they may be joined into one.

The spider uses two kinds of threads in its web: one kind in the rays, and one in the threads which are fastened to the rays.

The rays are the long lines in the web, and look like the spokes of a wheel. The silk of the rays is smooth.

The rays are spun first, and the silk that goes across the rays has tiny drops of glue on it. This holds the lines in place.

As the thread comes from the spinnerets, the spider guides it with its hind feet.

The spider is very patient, and will often rebuild its home again and again when it has been destroyed.

There are many kinds of spiders, and all spin some kind of a web.

The webs are traps to catch flies and other insects.

The spider kills or stuns its prey before it takes it to its nest. Sometimes it spins a web around it, and then carries it off to eat.

People have said that spiders are greedy, but they need much food, as they work hard in spinning their webs.

THE NEW YORK  
PUBLIC LIBRARY

ASTOR LENOX  
TILDEN FOUNDATION  
NEW YORK



THE SQUIRREL.



## 28. THE SQUIRRELS.

---

PAPA and Mamma Squirrel, with their three baby squirrels, lived in the hollow of a big tree.

They were a happy family, and it was their papa's delight to take the babies all out among the large trees that were so full of nuts. Here he liked to teach them how to use their teeth to crack and get the kernels out.

Squirrels eat nuts to make themselves strong and frisky, as boys eat oatmeal.

Squirrels have long, strong teeth, and can do much harder work with them than boys can with theirs.

The papa squirrel gathered some of the smallest and most tender nuts for the babies to crack, for their teeth hadn't grown so strong as the papa's.

One day, while they were having such a happy time, Jack Frost made them a visit and whispered something to the papa squirrel :

"Mr. Squirrel, Mr. Wind will soon shake off

all the nuts from the tree, and I shall bring a great white blanket to cover them and the leaves that had gone to sleep for the winter. If you have not filled your cellar full of nuts, you had better be about it, for you will not be able to find any very soon."

"Thank you, Mr. Jack Frost," said Papa Squirrel, "I will tell the news to mamma and all the little squirrels. We will teach the young ones how to carry nuts, and when our storehouse is full, you may come and make us a visit, and we will show you how we crack nuts."



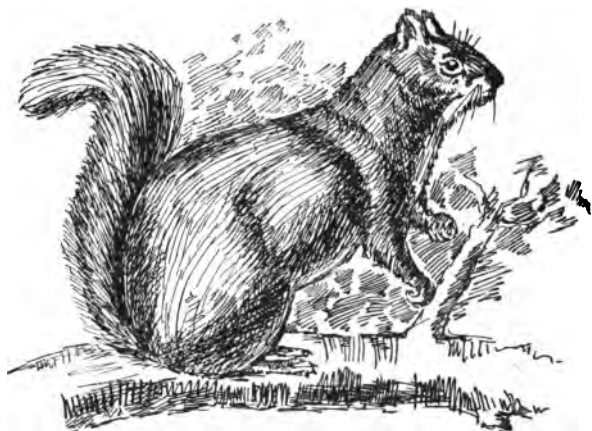
Papa Squirrel gathered his family close around him that night and told them all that Jack Frost had said.

"Now, my little ones," he said, "your mamma and I cannot gather, before the great blanket comes, enough nuts to last us all winter. You know the people who work are the happiest, and we want you to be as happy as squirrels can be. Will you help us, by gathering all the nuts you can, and piling them in our snug little hole, that we may have as many nuts as we may need this winter?"

And each little squirrel said, "Chip, chip,"—meaning, of course, "Yes, yes."

The next morning, bright and early, the whole squirrel family whisked out of their home, and their bushy tails were as fluffy as squirrels' tails can be.

The baby squirrels scampered back and forth,



trying to see which could go from the trees to the home quickest and oftenest.

Every day they worked and played in this way, until they had their hole so full there was room left only for the family to eat and sleep.

Mr. Wind kept his promise and shook all the nuts upon the ground. Then Jack Frost kept his promise and brought the great, white blanket, which covered all the nuts and leaves and flowers.

So the squirrel family were happy because they had in their warm house plenty to eat, and had worked hard to get it.

The baby squirrels worked and played so hard, and ate so many nuts, that in the spring they were as large and as strong as their dear papa and mamma, and they left their old home and made homes of their own in other trees.

C. L. S., *Kindergarten Magazine.*

## 29. MR. AND MRS. CHIPMUNK.

---

**H**ARK! we have started a little chipmunk, as the boys call him because of that gentle chipping sound he makes. He is smaller than his cousins, the gray and the red squirrels, is he not?

How beautiful his brownish coat looks, striped with dark brown and buff!

Now, lest we should frighten him again, let us be quiet for awhile, and let us read this story that we may learn something of his habits and tastes:

"Mr. and Mrs. Chipmunk were in search of a good place for a home. Said they, 'The red and the gray squirrels may build up in the trees if they like, but we will have our nest in the earth.'

"At last, they chose a quiet place beside an old stone wall, where bushes would shade their home, and where the dead leaves would keep out much of the frost.

"Then they went to digging, and how they did work! It took a long time; for, although they worked with all their might while they were about

it, yet they took time to eat and to chase each other round and round.

"When they had dug a hole about three feet deep, they said to each other, 'Just right!' Then they began to make a tunnel. This was a narrow and winding tunnel, slanting upward at the end.

"By the time it was finished, it was autumn. Their gray and red cousins were gathering acorns, nuts, and partly decayed fruit. They were placing them here and there in high and dry places, that they might have them for food when the snow was deep and food scarce.

"'Now,' said the Chipmunks, 'for our winter store!'

"Off they set together, and soon found a fine tree of nuts. When they picked up nuts, they could tell, without making holes in them, whether or not they were good. If they were decayed, they threw them down and scampered off for more.

"Good ones they would turn over,—gnaw away the sharp points at the tops, so that the points should not hurt them, and with their paws tuck them into their mouths.

"Four were just enough for them to carry at once; one at each side, one in the middle, and one between the teeth. When Mr. and Mrs. Chip-

munk were loaded in this way, they looked as if they had the mumps. They would set off for their home, to hide their treasures in the farthest corner.

“‘How lucky we are!’ said Mr. Chipmunk when his mouth was emptied once more. ‘Nuts are not always so plentiful.’

“‘I think the children left this tree for the squirrels,’ said Mrs. Chipmunk. When they had gathered three or four quarts, they laid away a few kernels of corn and some grass seed, that they might have a change of food.

“Said they, ‘When the weather is very severe, we shall have only to go from our warm nest in one corner of the house to our storehouse in another to get a nice meal.’

“How snug and cosy they were all the long winter!”

*Adapted from Stories from Animal Land.*

### 31. THE RABBIT.

---

JAMES GRAY had two pet rabbits. One was black and white with black eyes; the other was white with pink eyes and ears. Each had soft fur and a short bushy tail.

James was very fond of his two pets, and took great pleasure in watching them. He learned that when the rabbit is listening, he pricks up his ears; when frightened or running very fast, he lays them down on his back.

The hind legs being so much longer than the fore legs, the rabbit does not walk, but hops or leaps.

Rabbits are very fond of lettuce and cabbage leaves, so James had to watch his pets very closely, for fear they might do damage in the garden.



Rabbits belong to the family of gnawers, and have sharp chisel-shaped teeth. The inside of the teeth is soft and easily worn off, while the outside is very hard enamel.



The teeth of the gnawers grow all the time, and this family must gnaw to keep them sharp and of the right length.

James' mother told him that the wild rabbit makes his home in the ground by burrowing. Mr. Rabbit digs and burrows until he has a home with a great many chambers.

Mrs. Rabbit digs a separate home for her babies and at the far end makes a little nest. She pulls soft fur from her own body to line their home.

Is she not a good mother to make this warm fur bed for her babies?

The little rabbits are born blind and naked. So it is well that Mrs. Bunny is thoughtful.

When she goes out for food, she often stops the opening of her home with leaves and earth. This is done that no harm or cold may come to the babies.

For some time Mrs. Bunny cares for her babies, but when the young rabbits have learned enough to care for themselves, they find herbs to eat. Soon they make homes of their own.

## 32. IN THE RABBIT'S PLACE.

---

FRANK was very fond of chasing his uncle's rabbits.

Away Frank would race, a long stick in his hand, over the hill and through the fields. The poor rabbits, wild-eyed and panting, darted ahead at their topmost speed.

One day, after chasing them for some time, Frank lay down under a tree in the orchard and fell asleep.

All at once, he dreamed that his ears grew longer and longer; his nose grew out. He looked down; there were four tiny paws instead of his own hands and feet! He felt strangely weak and timid, too; but that was not the worst of it.

Over the hill came a boy, pell-mell, shouting and shaking a cane. Away Frank darts; away, away! but he cannot fly fast enough; that terrible boy is gaining upon him! His heart beats so fast that he can scarcely breathe, and he cannot move his limbs; and now the stick is held over him!



THE RABBIT.

1940 10 10

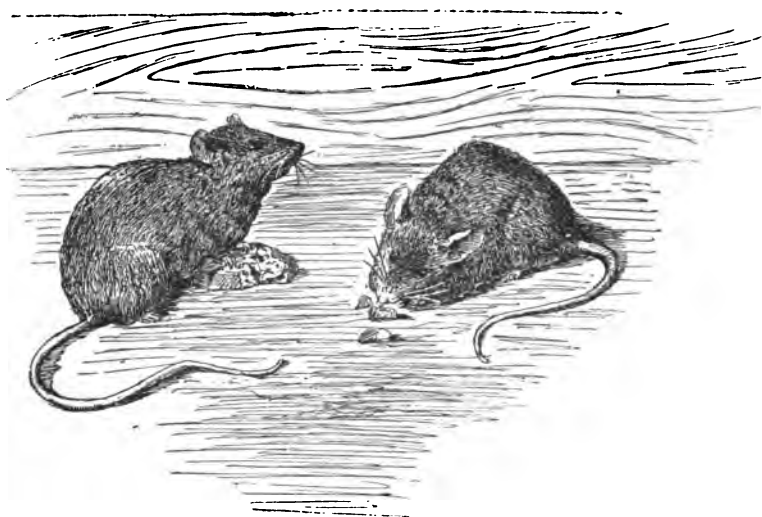
1940 10 10

1940 10 10

With a great cry, Frank awoke, and, I can tell you, was glad enough to find he had not been changed to a rabbit for all time.

I know you will be glad that he had that dream, for he never chased the rabbits afterward.

*Adapted from Stories from Animal Land.*



### 33. THE MICE.

---

**M**ICE and their cousins the rats belong, like the squirrels, to the large family of gnawers.

Their chisel-shaped teeth are kept of the right length by constant gnawing. If they did not gnaw, the teeth would grow too long and they could not use them.

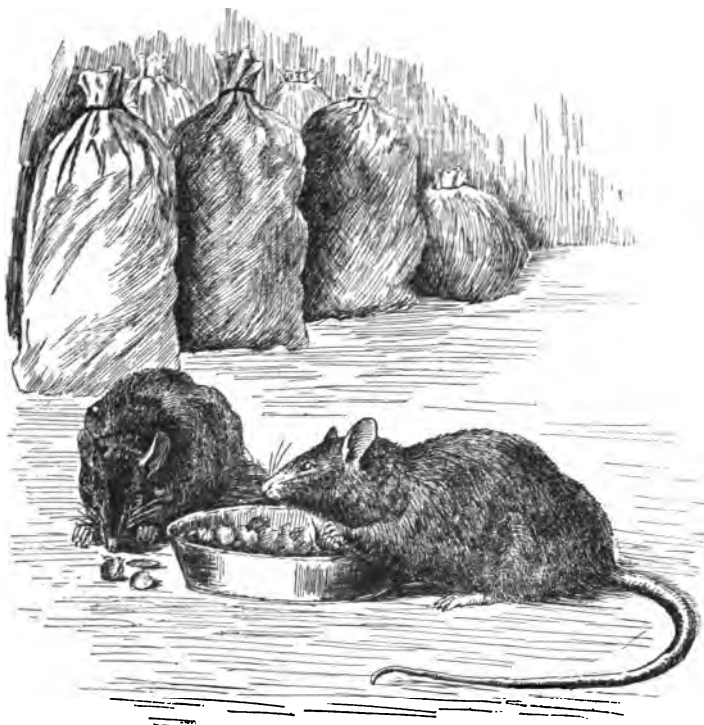
Their senses of sight, smell, and hearing are very sharp. If tamed they can easily be taught. Many children have white rats and mice for pets, and often teach them many tricks.

I once caught a mouse and put it into a cage to learn its habits. When eating, it would often take its food in its fore paws, just as I have seen squirrels do.

What I enjoyed most was to watch the mouse wash its face. It did this with its fore paws; first it used one paw, and then the other.

Mice are very clean little animals, always washing themselves after every meal.

Mice and rats are swift runners and good climbers, being able to run up nearly smooth surfaces.



#### 34. THE RAT.

---

**R**ATS are much larger and stronger than mice, and have been known to nibble away the hard corner of a brick, and to gnaw through leaden water-pipes.

The mother rat is very fond of her babies, braving all dangers to defend her young.



Rats are fond of good things to eat. I once knew a lady who had some preserves put up in bottles with long, slender necks. These she placed on a shelf in the cellar.

Once when some friends were spending the day with her, she thought she would have some of the preserves for lunch.

She went to the cellar and found one bottle with the cork gone, and only a little sauce in the bottom of the bottle. She could not understand what had become of the preserves; but as there were more bottles, she took one and thought she would watch the rest.

One afternoon, she heard a great scampering in the cellar. She went to the head of the stairs and listened. Soon she heard a chip, chip!

A rat was gnawing at the cork of one of the preserve bottles. He kept at work until the cork was gnawed out. Then how do you think he got the sauce?

He ran his tail down into the bottle and drew it out again with the sauce on it. After he had eaten the preserves, he put his tail in again as before.



He kept this up until he could reach no more.

You may be sure the lady found a safer place for her preserves.

The rat is very fond of eggs and sometimes carries them to his home without breaking them. Do you know how he does this?

As I have said, rats like good things to eat; but when these cannot be found, they will eat all kinds of strange food.

### 35. THE SCATTERING OF THE SEEDS.

---

**S**EEDS are scattered in many ways. Birds help to carry them. Animals sometimes carry seeds about in their hair, and drop them here and there.

The burrs are seed holders. We all know how these stick to our clothes. Have you ever thought that when you pick them off and throw them away you are scattering seeds?

The down of the thistle, milkweed, and dandelion seeds makes little fluffy balloons. The wind takes these balloons on long journeys.



There are seeds that roll when they fall. There are a great many of these. How many can you name?

Some seeds are carried from their homes by water,





The seeds of the maple, elm, pine, fir, and ash have wings. We have often seen them flying through the air. The wind helps to scatter these, and often carries them far from where they grew.

When a seed falls to the ground, as long as the earth is cold and dry it lies as if it were dead. But as soon as the spring comes, and the sun warms the earth, the little plant awakens.

THE  
JOURNAL OF THE  
ROYAL ANTHROPOLOGICAL INSTITUTE

1905  
LONDON  
1905



AUTUMN LEAVES.

### 36. THE AUTUMN LEAVES.

---

**H**OW lovely the trees are in the fall with their many-colored leaves! When the sun shines, they look as if they were covered with bright blossoms.

Many people believe that the beautiful coloring of the leaves is done by the frost, but this is not true. The change of color shows that the tree is getting ready for winter.

Often the coloring of the leaves begins at the top of the tree, giving it a bright, beautiful crown.

There are many trees that never have a red leaf. The poplar, hickory, and birch have some shade of yellow.

The mother trees are very busy in the fall sending up things for the baby buds to eat, and blankets to keep them warm through their winter sleep.

When you walk in the woods, think how hard at work the little plants and big trees are, all around.

All summer, the leaves wore their green work-dresses, but the bright-colored ones are for parties.

Mr. Wind came along one day when the leaves had on their gay attire, and said, "Come with me, little leaves, it is time for October's party. All your friends will be there."

Then the little leaves flew away with Mr. Wind, saying, "Good-bye, dear mother tree."

"Good-bye, dear children," said the tree; "I shall stay here all through the winter and take care of the baby buds."

What a happy time they had! After the party they played with Mr. Wind, but as the days grew colder, the bright dresses became faded and brown. The little leaves grew so tired that they went to sleep and were covered with a soft white blanket.

When the leaves slept, they helped to cover the many seeds that had been scattered by Mr. Wind.

Were the leaves lost? No they became part of the earth. Much of the dark rich earth in the forest is made from leaves. It is called leaf-mould.



### 37. FRIENDS.

---

NORTHWIND came whistling through the  
wood

Where the tender sweet things grew, —  
The tall fair ferns and the maiden's hair  
And the gentle gentians, blue.

"It's very cold — are we growing old?"  
They sighed, "What shall we do?"

The sigh went up to the loving leaves.

"We must help," they whispered low;

"They are frightened and weak, O brave, old trees!  
But we love you well, you know."

And the trees said, "We are strong — make haste,  
Down to the darlings go."

So the leaves went floating, floating down,

All yellow, and brown, and red,

And the frail little trembling, thankful things

Lay still and were comforted.

And the blue sky smiled through the bare old trees,  
Down on their safe warm bed.

From McMurry's *Classic Stories for the Little Ones*.

By permission of PUBLIC SCHOOL PUBL. CO.



### 38. YEARLY TRAVELERS.

---

**I**N the summer, the birds have their airy homes in our trees, and sing their sweetest songs. How we do enjoy their music! But when the wind moans through the trees, and the leaves begin to fall, they fly away to their new homes in the south.

When birds fly from one country to another, we say that the birds migrate.

It seems very strange to us that they know when to migrate and which way to fly.

They never mistake the north for the south.

Does each little bird go alone? No, some fly in large, widespread flocks; others in long, narrow columns. Some have two or three leaders.

The storks have a leader, and the rest follow in a wedge-shaped mass. When the leader gets tired, he flies behind and lets another take his place.



YEARLY TRAVELERS.

1941-1942

1943-1944

1945-1946

1947

The birds that migrate usually keep the same seasons for their journeys.

Different birds fly to different places. Swimming and wading birds find a home near the water.

Although some birds fly a great distance, very few die on the way. Sometimes the whole flock stops to rest and eat.

Most of our little singing birds migrate. A few birds that come in the spring spend the summer with us, but some come and others go, throughout the year.

Some birds from the north go farther south to spend the winter. The English sparrows are hardy little fellows, and care not for the wind and cold weather.

They brighten many a dark, dreary day in winter. You may have seen them hopping about, chirping, pecking, and scolding.

In the fall, watch and see if you can tell which birds come, and which go.

965667A

### 39. WINTER QUARTERS.

---

WALTER was very fond of fun and frolic, but he was just as fond of watching the wonderful things in nature.

One cold day late in the fall, he came into the house and said: "Mamma, have you seen my turtles? I cannot find them."

"No," said his mamma, "but I think they have dug a hole for their winter home, and there gone to sleep till the spring comes."

"Do the turtles take such a long sleep every winter?" asked Walter.

"They do, my dear, and many other animals also. The snails, snakes, lizards, frogs, toads, bats, squirrels, and bees sleep in the winter.

"Bees are safe in their hives. Snails dig holes in the earth, and shut up their shells with a kind of slime. Snakes, lizards, toads, and frogs bury themselves in the ground.

"The bats group together and fix their hooked claws in the roof of some cave or old building. They cover their bodies with their leathery wings,

till the mild spring evenings invite them out again to catch insects.

"The squirrels make a nice warm home in the hollow trunk of some tree, or they build a nest in the ground.

"The squirrels and bees, with all the animals that sleep in the winter and need food, lay up a store of such things as suit them best. When they are hungry they awake, eat as much as they want, and then sleep again."

"Is that the reason Mr. Horn always leaves some honey in the hives in the autumn?" asked Walter.

"Yes, he knows that the poor little bees will need some food before the spring flowers blossom again. But the first warm day after the snow is gone, we see bees wide awake, flying about the early blossoms."

"Do the turtles awake before winter is gone?" asked Walter.

"No," said mamma, "they live without food."

"How do these creatures know when it is time to rouse again, if they are buried in the ground?"

"They are taught this by their Maker, just as the bees and squirrels are taught to store up food."

“What a strange, wonderful thing this sleeping is,” said Walter.

“Indeed it is,” said mamma; “if it were not for their long sleep, many of these animals would starve because they could find nothing to eat.”



## ADVERTISEMENTS



THE BEST SUPPLEMENTARY READING.

---

## NATURE STUDY

**THE JANE ANDREWS BOOKS.** By JANE ANDREWS.

**The Seven Little Sisters.** For introduction, 50 cents.

**Each and All.** For introduction, 50 cents.

**Stories Mother Nature Told her Children.** For introduction, 50 cents.

**STUDY AND STORY NATURE READERS.** By J. H. STICKNEY,  
Author of the Stickney Readers.

*Now Ready.*

**Pets and Companions.** For primary grades. Sq. 12mo. Cloth.  
Fully illustrated. 142 pages. For introduction, 30 cents.

**ALL THE YEAR ROUND.** By FRANCES L. STRONG of the Teachers'  
Training School, St. Paul, Minn.

**Part I. Autumn.** Sq. 12mo. Cloth. Fully illustrated. 102 pages.  
For introduction, 30 cents.

**Part II. Winter.** Sq. 12mo. Cloth. Fully illustrated. 102 pages.  
For introduction, 30 cents.

**Part III. Spring.** Sq. 12mo. Cloth. Fully illustrated. 99 pages.  
For introduction, 30 cents.

**LITTLE NATURE STUDIES FOR LITTLE PEOPLE.** From the  
Essays of JOHN BURROUGHS. Edited by MARY E. BURT.

**Volume I. A Primer and a First Reader.** Boards. 106 pages.  
Illustrated. For introduction, 25 cents.

**Volume II. A Second Reader and a Third Reader.** Illustrated.  
Boards. 103 pages. For introduction, 25 cents.

**GLIMPSES AT THE PLANT WORLD.** By FANNY D. BERGEN.  
Fully illustrated. Cloth. 156 pages. For introduction, 50 cents.

**SEED-BABIES.** By MARGARET W. MORLEY, recently instructor  
in Biology, Armour Institute, Chicago. Boards. Illustrated.  
75 pages. For introduction, 25 cents.

**LITTLE FLOWER PEOPLE.** By GERTRUDE ELISABETH HALE.  
Sq. 12mo. Cloth. Illustrated. 85 pages. For introduction,  
40 cents.

**STARLAND.** By SIR ROBERT S. BALL, Royal Astronomer of Ireland.  
Illustrated. Cloth. 376 pages. For introduction, \$1.00.

---

**GINN & COMPANY, Publishers,**

Boston. New York. Chicago. Atlanta. Dallas.

THE BEST SUPPLEMENTARY READING

---

# **Geography**

By **ALEX EVERETT FRYE**,  
*Author of Frye's Series of Geographies.*

---

## **BROOKS AND BROOK BASINS.**

**FIRST STEPS IN GEOGRAPHY — NATURE STUDIES.** Cloth.  
119 pages. Illustrated. For introduction, 58 cents.

This is a geographical reader and text-book for children, written expressly for the fourth, fifth, and sixth grades or years in school. It makes a new departure in the subject-matter of Primary Geography. A leading feature of the work is its collection of choice poems of nature. There are more than three dozen beautiful quotations from a score of the best writers for children.

**Dr. W. H. Payne**, *President of University of Nashville (Peabody Normal College)*: The book is a little gem in all respects, and reflects great credit on its author's knowledge and skill. I regard it as one of the most valuable contributions to Geographical Science that has appeared within the last twenty-five years.

## **THE CHILD AND NATURE.**

**GEOGRAPHY TEACHING WITH SAND MODELING. A MANUAL FOR TEACHERS.** Cloth. 210 pages. Illustrated. For introduction, 80 cents.

This is the only book on Sand Modeling ever published. It embodies a system and method of teaching geography based on the globe relief.

**Thomas M. Balliet**, *Superintendent of Schools, Springfield, Mass.*: Of all the books that I have read on the subject of Geography teaching, this is incomparably the ablest and best.

BY THE SAME AUTHOR.

**TEACHERS' MANUAL.** To accompany Frye's Geographies. 12mo.  
Flexible cloth. 190 pages. Fully illustrated. For introduction, 50 cents.

---

**GINN & COMPANY, Publishers,**

Boston. New York. Chicago. Atlanta. Dallas.

# BOTANIES

---

## BOOKS OF SPECIAL VALUE.

### ELEMENTS OF BOTANY.

By JOSEPH V. BERGEN, Instructor in Biology in the English High School, Boston. 332 pages. Fully illustrated. For introduction, \$1.10.

Bergen's Botany aims to revolutionize the study of botany and to put it on an experimental and observational basis, so that the study shall have a disciplinary value which it lacks now. The book can be used where they have no laboratory work, no microscope, in fact, no apparatus whatever. Good work can be done with a magnifying glass and pocket knife only. It covers a little more than a half year's work. The plan of the book is brought into substantial accord with the consensus of opinions of representative high school teachers in many sections of the country.

### ELEMENTS OF PLANT ANATOMY.

By EMILY L. GREGORY, Professor of Botany in Barnard College. 148 pages. Illustrated. For introduction, \$1.25.

Designed as a text-book for students who have already some knowledge of general botany, and who need a practical knowledge of plant structure.

### ELEMENTS OF STRUCTURAL AND SYSTEMATIC BOTANY.

For High Schools and Elementary College Courses. By DOUGLAS H. CAMPBELL, Professor of Botany in the Leland Stanford Junior University. 253 pages. For introduction, \$1.12.

### PLANT ORGANIZATION.

By R. HALSTED WARD, formerly Professor of Botany in the Rensselaer Polytechnic Institute, Troy, N.Y. Quarto. 176 pages. Illustrated. Flexible boards. For introduction, 75 cents.

### LITTLE FLOWER-PEOPLE.

By GERTRUDE E. HALE. Illustrated. 85 pages. For introduction, 40 cents.

This book tells some of the most important elementary facts of plant life in such a way as to appeal to the child's imagination and curiosity.

### GLIMPSES AT THE PLANT WORLD.

By FANNY D. BERGEN. Fully illustrated. 156 pages. For introduction, 50 cents.

This is a capital child's book, and is intended for a supplementary reader for lower grades.

### OUTLINES OF LESSONS IN BOTANY.

For the use of teachers or mothers studying with their children. By JANE H. NEWELL.

**Part I.: From Seed to Leaf.** 150 pages. Illustrated. For introduction, 50 cents.

**Part II.: Flower and Fruit.** 393 pages. Illustrated. For introduction, 80 cents.

### A READER IN BOTANY.

Selected and adapted from well-known authors. By JANE H. NEWELL.

**Part I.: From Seed to Leaf.** 199 pages. For introduction, 60 cents.

**Part II.: Flower and Fruit.** 179 pages. For introduction, 60 cents.

Newell's Botanies aim to supply a course of reading in botany calculated to awaken the interest of pupils in the study of the life and habits of plants.

---

GINN & COMPANY, Publishers.

# STAR-LAND

Talks with Young People about the Wonders of the Heavens.

BY SIR ROBERT S. BALL,

*Royal Astronomer of Ireland.*

---

Cloth. 384 pages. Fully illustrated. For introduction, \$1.00.

---

THIS is a book of the rarest excellence. It combines the knowledge of a royal astronomer with the happy faculty of the story-teller.

It is based upon two courses of Christmas lectures delivered to children at the Royal Institution, Great Britain, and is something of rare quality, — lucid, fascinating, and yet thoroughly scientific.

This fascinating book treats, in a manner equally true to science and attractive to children, all the chief topics of Astronomy: the sun, the moon, the planets, comets, meteors, and the stars. It is just the book that has been wanted for a long time, and is calculated not only to interest and instruct, but to lead to greater effort, on the part of the learner, in the right direction.

**The Right Hon. W. E. Gladstone:** I have now finished reading your luminous and delightful *Star-Land*, and I am happy to be in a sense enrolled amongst your young pupils.

---

**GINN & COMPANY, Publishers,**

Boston. New York. Chicago. Atlanta. Dallas.

# THE CYR READERS

By ELLEN M. CYR.

**THE CHILDREN'S PRIMER.** Sq. 12mo. Cloth. Fully illustrated. 106 pages. For introduction, 24 cents.

**THE CHILDREN'S FIRST READER.** Sq. 12mo. Cloth. Fully illustrated. 111 pages. For introduction, 28 cents.

**THE CHILDREN'S SECOND READER.** Sq. 12mo. Cloth. Fully illustrated. 197 pages. For introduction, 36 cents.

**THE CHILDREN'S THIRD READER.** Sq. 12mo. Cloth. Fully illustrated. 280 pages. For introduction, 50 cents.

**THE CHILDREN'S FOURTH READER.** Sq. 12mo. Cloth. Fully illustrated. 388 pages. For introduction, 60 cents.

The Children's Primer contains more reading matter, in proportion to the number of new words, than any other book in the market.

The Children's First Reader is made for the second half-year. It is a simple but steady growth in the same line with the Primer.

The Children's Second Reader is based upon stories from the lives of Longfellow and Whittier, supplemented by many other pretty stories of nature and childhood.

The Children's Third Reader is arranged on the same lines as the Second Reader. Stories from the lives of Lowell, Holmes, and Bryant are introduced.

The Children's Fourth Reader has been prepared on the same lines as the Second and Third Readers. Sketches of Hawthorne, Dickens, Scott, Tennyson, and Irving are introduced, amply illustrated with portraits and pictures of the homes of these authors. Choice selections have also been made from authors whose writings are especially interesting and instructive to pupils of fourth reader grade.

---

**GINN & COMPANY, Publishers,**

Boston. New York. Chicago. Atlanta. Dallas.

James Parton, the Historian, called Jane Andrews, the author of these books, "the best teacher in the world."

---

## THE JANE ANDREWS BOOKS

A remarkable series of attractive and interesting books for young people, — written in a clear, easy, and picturesque style. This is the famous Jane Andrews series which has been for many years an old-time favorite with young folks. Other juvenile books come and go, but the Jane Andrews books maintain the irresistible charm they always have had.

**THE SEVEN LITTLE SISTERS WHO LIVE ON THE ROUND BALL THAT FLOATS IN THE AIR.** 12mo. Cloth. 143 pages. Illustrated. For introduction, 50 cents.

**EACH AND ALL; THE SEVEN LITTLE SISTERS PROVE THEIR SISTERHOOD.** 12mo. Cloth. Illustrated. 162 pages. For introduction, 50 cents.

**THE STORIES MOTHER NATURE TOLD HER CHILDREN.** 12mo. Cloth. Illustrated. 161 pages. For introduction, 50 cents.

**TEN BOYS WHO LIVED ON THE ROAD FROM LONG AGO TO NOW.** 12mo. Cloth. 243 pages. Illustrated. For introduction, 50 cents.

**GEOGRAPHICAL PLAYS.** 12mo. Cloth. 140 pages. For Introduction, 50 cents.

The "Seven Little Sisters" represent the seven races, and the book shows how people live in the various parts of the world, what their manners and customs are, what the products of each section are and how they are interchanged.

"Each and All" continues the story of Seven Little Sisters, and tells more of the peculiarities of the various races, especially in relation to childhood.

Dame Nature unfolds in "Stories Mother Nature Told" some of her most precious secrets. She tells about the amber, about the dragon-fly and its wonderful history, about water-lilies, how the Indian corn grows, what queer pranks the Frost Giants indulge in, about coral, and starfish, and coal mines, and many other things in which children take delight.

In "Ten Boys" the History of the World is summarized in the stories of Kabla the Aryan boy, Darius the Persian boy, Cleon the Greek boy, Horatius the Roman boy, Wulf the Saxon boy, Gilbert the Knight's page, Roger the English boy, Fuller the Puritan boy, Dawson the Yankee boy, and Frank Wilson the boy of 1885.

In "Ten Boys" one is struck with the peculiar excellence of its style, — clear, easy, graceful, and picturesque, — which a child cannot fail to comprehend, and in which "children of a larger growth" will find an irresistible charm. — **John G. Whittier.**

---

**GINN & COMPANY, Publishers, Boston, New York, and Chicago.**



# STICKNEY'S READERS

By J. H. STICKNEY.

A series of attractive, well-graded, and thoroughly tested reading books, combining in an unusual degree, exceptional literary merit and marked originality with the most rational and practical methods.

**A FIRST READER.** 104 pages. Illustrated. 24 cents.

**A SECOND READER.** 198 pages. Illustrated. 32 cents.

**A THIRD READER.** 248 pages. Illustrated. 40 cents.

**A FOURTH READER.** Half leather. 362 pages. Illustrated. 50 cents.

**A FIFTH READER.** Half leather. 356 pages. Illustrated. 60 cents.

## AUXILIARY READERS.

**FIRST WEEKS AT SCHOOL.** *Occupation, Recreation, and Instruction.* By J. H. STICKNEY and S. C. PRABODY. Profusely illustrated. 48 pages, including 8 full-page colored pictures. Flexible covers. 12 cents.

**THE CLASSIC PRIMER.** 94 pages. Illustrated. Boards. 20 cents.

The Stickney Readers are based on the right idea of what a reading book should be. They secure the best results at the least expense of time and effort. It is their distinct aim to inculcate a love of reading, and so give not only the key to all knowledge, but the desire to use it. They are the fruit of many years of most successful experience, and, while original in many features, are always rational and practical.

**O. T. Bright,** *Superintendent of Cook County Schools, Chicago:* They are well graded; the reading matter is of great interest, and has real merit as literature; the amount of reading will delight the hearts of teachers and children; the suggestions to teachers are excellent.

**E. A. Sheldon,** *Principal of State Normal School, Oswego, N.Y.:* They are beautiful books, and happily adapted to children of the grade for which they are prepared.

**George L. Osborne,** *President of State Normal School, Warrensburg, Mo.:* I especially commend them for the freshness of the exercises, their adaptability to the purposes intended, and the general plan which prevails throughout.

**A. R. Sabin,** *Assistant Superintendent of Schools, Chicago, Ill.:* They have found favor with our teachers and pupils from the first. To me the books seem to be just what the gifted author intended them to be,—as natural and beautiful as childhood itself. They deserve the greatest success.

**G. S. Albee,** *President of State Normal School, Oshkosh, Wis.:* We need only say, in addition to the testimony of use, that we were never so completely won to the merits of any former series.

**E. H. Davis,** *Superintendent of Schools, Chelsea, Mass.:* It is one of the best series of readers yet published,—natural in style, well graded, very popular with teachers, and exceedingly interesting to children.

---

**GINN & COMPANY, Publishers.**

# CLASSICS FOR CHILDREN

**Choice Literature; Judicious Notes; Large Type;  
Firm Binding; Low Prices.**

*For the prices and bibliography of these books,  
see our High School and College Catalogue.*

Aesop's Fables.  
Andersen's Fairy Tales. First Series.  
Andersen's Fairy Tales. Second Series.  
Bunyan's Pilgrim's Progress.  
Burt's Stories from Plato.  
Chesterfield's Letters.  
Church's Stories of the Old World.  
Defoe's Robinson Crusoe.  
Dickens' Tale of Two Cities.  
Cervantes' Don Quixote of La Mancha.  
Epictetus.  
Fiske-Irving's Washington and His Country.  
Francillon's Gods and Heroes.  
Franklin: His Life by Himself.  
Goldsmith's Vicar of Wakefield.  
Grimm's Fairy Tales, Part I.  
Grimm's Fairy Tales, Part II.  
Grote and Ségur's Two Great Retreats.  
Hale's Arabian Nights.  
Hatim Tai.  
Hudson and Lamb's Merchant of Venice.  
Hughes' Tom Brown at Rugby.  
Irving's Alhambra.  
Irving's Sketch-Book. (Six Selections.)

Johnson's Rasselas.  
Kingsley's Greek Heroes.  
Kingsley's Water Babies.  
Lamb's Adventures of Ulysses.  
Lamb's Tales from Shakespeare.  
Marcus Aurelius.  
Martineau's Peasant and the Prince.  
Montgomery's Heroic Ballads.  
Plutarch's Lives.  
Ruskin's King of the Golden River.  
Selections from Ruskin.  
Scott's Guy Mannering.  
Ivanhoe.  
Lady of the Lake.  
Lay of the Last Minstrel.  
Marmion.  
Old Mortality.  
Quentin Durward.  
Rob Roy.  
Tales of a Grandfather.  
Talisman.  
Southey's Life of Nelson.  
Swift's Gulliver's Travels.  
White's Natural History of Selborne.  
Williams and Foster's Selections for Memorizing.  
Wyss' Swiss Family Robinson.

**GINN & COMPANY, PUBLISHERS,**

Boston. New York. Chicago. Atlanta. Dallas.

